Economic Gardening

Mapping Fertile Gardens

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GrowFL

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1. Intro

The practice of economic development relies on many programs, initiatives and tools to guide communities to stability and prosperity. Peter Eisinger (1988) identified two major categories of economic development initiatives; the supply-side and the demand-side. Supply-side policy is focused on location attributes of the area, the practice of luring companies to relocate in the area, the focus of retaining existing companies, intense competition will all other jurisdictions to land established companies, and the focus on financial incentives to increase the appeal of the area. Demand-side economic development policy is more concerned with indigenous growth, a focus on new business formation and small business expansion, innovation and new capital, and the expansion or identification of new markets for local goods and services. (Eisinger, p. 12).

Traditional economic development initiatives have demonstrated, "an almost exclusive reliance on supply-side location incentives to stimulate investment" (Eisinger, p. 10). However, over the last few decades a small shift has taken place in economic development policy to acknowledge the power of demand-side policy. This shift has paved the way for more progressive initiatives. We currently live in the "New Economy," a term coined by Time magazine in 1983 to describe our era in which information and technology are rapidly growing, increasing productivity so manufacturing plays less of a role in developed countries, and location of firms matters less because, as popularized by Thomas Friedman (2006), through globalization "3.0" the world has become flat.

The effect on economic development policy is that companies are less influenced by location attributes so jurisdictions enter a bidding war of incentives to entice established company relocations. Incentives have, in some cases, reached $200,000 per job created, which casts into doubt whether winning such a bid would actually benefit a community (Barrios, p. 74). As recently as March 11, 2012, the Atlanta Journal Constitution ran an article focused

on the competiveness of Georgia's economic development focus on business relocation attraction, and the poor long-term results associated with that tactic. Between 1994 and 2008, Georgia was the fourth most successful state in the race for recruiting companies, however only four percent of new jobs during that time span were the result of relocations, while ninety-six percent of new jobs originated from new startups, existing company expansions and local company spin-offs (Kanell, 2011).

Economic Gardening (EG) is a progressive, broad-based, demand-side economic development tool focused on the internal strength and diversified economic base of a community. It is a long-term initiative, with established results in job creation, but EG programs are as diverse as the communities they serve. The term "economic gardening" was created as a metaphorical antithesis to the concept of chasing major company relocations, or "big-game hunting" (Gibbons and Woods, 2010). A locality can chase the big thrill of landing a huge corporation relocation that surely presents a short-term increase in a locality's jobs total, but the approach of EG argues that the continual watering, nurturing, and guiding the growth of small businesses within the community is a more sound economic development approach. The Edward Lowe Foundation cites EG as the basis for their entrepreneurship programs and is creating a national network for cities and states enacting EG initiatives. The Edward Lowe Foundation supports EG because the organization sees EG as a fourth dimension to local economic development; along with traditional economic development, workforce development and small-business development, communities should add "growth-company development" or Economic Gardening to the mix (Edward Lowe Foundation). This paper will serve as an analysis of best practices of EG initiatives, and by determining spatial aspects of successful EG programs, and identify areas likely to respond to EG initiatives.

The format of this report will consist of a brief discussion of the fundamentals of Economic Gardening programs, followed by a case studies analysis of cities and states with EG

initiatives, and finally an analysis of the State of Georgia and recommendations for a Georgia EG program.

2. History of Economic Gardening

The concept of economic gardening was born in Littleton Colorado around 1990. Prior to 1990, Littleton's economy was heavily reliant upon two major employers that relocated to the area in the 1950s, and the city's economic development plan centered on attracting existing businesses to the area in an effort to replicate the past relocation successes. The 1987 recession dramatically affected the two primary employers and forced the local government to rethink Littleton's approach to economic development. Jim Woods, working as the Littleton City Manager, and Christian Gibbons, working as the Littleton Director of Business/Industry Affairs (BIA), were greatly influenced by a book entitled "*The Job Generation Process"* by David L. Birch and a paper entitled "*Increasing Returns and Long-run Growth"* by Paul Romer. Their ideas revolve around the idea that small businesses and entrepreneurs have a greater impact on job growth. Gibbons and Woods coined the term "economic gardening" to contrast it with the plan Littleton had in place at the time which involved more big-game hunting than gardening. The BIA recruited a researcher from the local library to jumpstart their first initiative, which included timely and accurate data search services for local businesses. They increased the office's access to subscription database services to provide local businesses with updates to census data, market shifts, and technology trends. The program grew over the years and has experienced great success. Since 1990, the job base in Littleton has doubled and the local economy has fared well in light of the recent recession with unemployment staying well below the national average.

Economic gardening has experienced a resurgence recently in light of the recent recession; many communities across America realize the economic growth potential of

entrepreneurs and small businesses for small communities. Simply stated, economic gardening is a practice that seeks to provide entrepreneurs and small businesses with market research about competitors, customers, locations and industry trends to facilitate more informed strategic decisions for growth oriented companies. The intent of an economic gardening program is to provide a steady flow of data to all local businesses as a gardener would provide a steady flow of water to all plants in a garden in the hopes that some plants in the garden will grow to bear fruit. The overarching purpose is to grow companies from within the given community instead of attracting relocations or expansions of outside businesses to the city. Success for economic gardening programs is defined by sustainable job growth.

3. Implications of Economic Gardening

Economic gardening programs present the opportunity for communities, municipalities, regions, and states to nurture relationships among businesses, to cultivate innovation, and to foster the growth of entrepreneurial start-ups to become job-rich companies. EG programs present opportunities in job creation, self-reliance, innovation, industry clustering, import substitution, and entrepreneurship.

3.1 Job Creation

Job creation has become a popular topic during the Great Recession as an indicator of economic gains or losses. The economy dominates the political arena and public opinion seems affixed to the idea of the creation of jobs. Job creation is the addition of new job positions within a firm, industry or sector. It can be defined by the source of the creation, either the employer or the policy that led to job creation; or it can be defined by the geographic area.

David Birch (1987) produced what is possibly the most influential job creation study to date. His work took a longitudinal look at job creation using the Dun & Bradstreet database, and

proclaimed that small businesses create the most jobs. He defined small businesses as having fewer than twenty employees, and proclaimed that they produced eighty-two percent of net new jobs between 1981 and 1985 (Birch, p. 14). Birch used a base year analysis and compared job growth over time as compared to the base year figure. His viewpoint supported his previous work and served as a spark for intense debate over the past two decades, as many researchers have attempted to reproduce his work.

His statistical methods have come under attack, most famously by Steven Davis and John Haltiwanger (1996), in that Birch's methods can include classification error by including small businesses erroneously through the base year method, and that there can exist an overestimation of small firm job creation due to regression-to-the-mean bias. Davidsson et al. (1998) denounced the work of Davis by demonstrating the insignificant effect regression-to-the-mean bias in the job creation studies across firms. David Neumark, Brandon Wall and Junfu Zhang (2011) found that while Birch's base year figures somewhat inflate the numbers of jobs created by small firms; however, once regression fallacy is accounted for in Birch's work, Birch's conclusion is still valid, that small firms produce the most jobs and job creation rate decreases as firm size increases.

As recently as 2008, Birch estimates that fifty-five percent of job creation is due to existing business growth, forty-five percent of job creation comes from new business start-up, and a mere one percent of job creation is produced by business relocation (Buttress and Macke, 2008). Birch later coined the term "gazelles," through work done by his research firm Cognetics, Inc, to refer to the small percentage of businesses that account for the lion share of jobs created by small firms. Gazelles are small businesses that rapidly become large corporations, and Birch estimates them to represent no more than three percent of US businesses (Case, 1996). Gazelles are difficult to explain and their success stories vary wildly, from niche markets to extraordinary entrepreneurial leaders. There exists no policy framework that will produce

Gazelles, however by creating a fertile garden of small businesses, the hope is that a few will grow into a strong job creator for the locality and serve as an anc hor for the local economy.

Birch's results indicate that small firms are important for job creation; however the quality or sustainability of the jobs offered by small firms as compared to larger firms is not discussed. The purpose of this paper is not to fully analyze the sources of job creation, but merely to acknowledge the importance of small firms in our economy and their ability to create jobs. Economic development policy that targets the retention or relocation of large firms at the expense of a balanced approach toward harvesting small businesses will neglect a large source of economic activity. Job creation is at the heart of economic gardening initiatives, and according to the evidence reported here, the care and cultivation of small businesses can have a strong impact on a local economy.

3.2 Sustainable Development

Sustainability, within the paradigm of economic development, refers to practices that simultaneously promote economic vitality, environmental stewardship, and equity (Audirac,1997). Economic development policy should be focused on the long-term goal of economic growth, development and stability. The United Nations World Commission on Environment and Development (WCED) offered the most widely cited definition of sustainable development as, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Entities that exhibit economic sustainability share characteristics that include a diverse economic base, environmental policies that ensure resources for future generations, and low income inequality and equal opportunity among residents. Sustainable economic development is closely tied to the idea of self-reliance, but it is more than that. It is the process of ensuring the economic vitality of an area that will provide a high quality of life for future generations, and

it is empowering communities to break into the global economy in order to guarantee their ability to control their own destiny (Weinberg, 2000). Sustainable development requires strategic programs that are broadly-based with a long-term vision, "such a far reaching set of goals can only be attained through an innovative and unified effort" (Barrios and Barrios, 2004).

Economic gardening initiatives present economic developers and locality stake-holders with a sustainable development tool in a number of different ways. The local focus of the program ensures that political power stays within the local community (Barrios and Barrios, 2004). Local business ownership presents numerous benefits for a community. Local ownership increases the stake a firm has in the community, so unsustainable practices could conceivably jeopardize the future of the company. Companies that are owned by outside entities, or have a pattern of relocating on a regular basis are less likely to be concerned with the future of the location and the welfare of future generations of the area.

3.3 Self-Reliance

Public policy that promotes self-reliant economic policy involves limiting outside influence, strengthening internal processes, and promoting sustainable economic development. David Imbroscio (1995) offered two fundamental principles for self-reliant economic policy, the pursuit of indigenous economic development and a strong focus on the city's resource flows, specifically diminishing the amount of leakage of capital flows.

Imbroscio presents seven fundamental goals for a self-reliant strategy for local economic development including stimulating small businesses, promoting local ownership, increasing import substitution, conserving resources, strengthening local economic multipliers, tapping innovative local finance sources and localizing employment policy.

A strong entrepreneurial small-business sector will, "contribute to the creation of a dynamic, diversified, innovative, and, hence, resilient local economy, one capable of

withstanding exogenous shocks" (Imbroscio, 1995). Small businesses invigorate a local economy through their support services, spin-off purchases, and job creation. Local economic developers should work to cultivate the entrepreneurial spirit in their communities through small-business market research, networking opportunities, technical and financial assistance, along with the drive to spur new entrepreneurial start-ups.

Self-reliant local economic development plans should encourage local business ownership because local owners will be much more likely to purchase goods locally, they should facilitate import substitution in order to work toward the local production of imported goods, focus on the conservation of resources and limit the overall reliance on the consumption of resources, and they should localize employment efforts in order to maximize resident employment. (Imbroscio, 1995)

3.4 Entrepreneurship

David Birch posits the idea that there are two types of small businesses, the income-substituter and the entrepreneur (Birch, p. 29). The income-substituter is typically motivated to be his or her own boss, they are typically in the services sector and they firms reach their max employment potential soon after formation and remain there. The income-substituters are simply driven by the desire for an alternative source of income. Timothy Bates (1993) refers to this group of small business leaders simply as "self-employed."

There is a major difference between the desire to become one's own boss and the desire to grow a company into something more. The entrepreneurs are driven to grow their small firm into a large corporation. They will thrive on innovation and education; they will rise and fall according to market trends and learning experiences. Lloyd Shefsky (1996) breaks down the word entrepreneur into its Latin roots to offer a definition; entre means enter, pre

means before, and neur means nerve center, so an entrepreneur is someone who enters a business in time to form or change dramatically a the nerve center of the business.

They are not merely looking for an alternative source of income, they are looking for more, and these are the small businesses that most affected by EG programs. Entrepreneurs exemplify the American spirit, but they are not omnipotent and they are made not born (Shefsky, 1996). The inclination of an individual to become an entrepreneur is not an alien idea to any person, and there is usually no shortage of entrepreneurial business ventures within a locality.

They key to tying entrepreneurship and economic development benefit is the prospect of successful entrepreneur initiatives, that is to say that economic development policy should be concerned with nurturing the ability for entrepreneurs to achieve their goals. There exists no definition of how to be a successful entrepreneur because the recipe for success is ever-changing.

According to Greg Lichtenstein and Thomas Lyons (2001) success depends on the ability to adapt, learn, and make decisions that enable the firm to capitalize on market opportunities. A broad approach toward an entrepreneurial economic development initiative should first focus on the development of entrepreneurs and then the services that help those entrepreneurs become successful (Lichtenstein and Lyons, 2001).

3.5 Developing Entrepreneurs

Successful entrepreneurs share no single trait that enables them to become successful; they may share some of the same characteristics. Particularly beneficial are the abilities to identify market needs, create innovative solutions, and capitalize on market conditions; these are skill sets that can be learned, “Entrepreneurship involves a set of skills that is the result of cultivation and development rather than innate endowment” (Lichtenstein and Lyons, 2001). Once an individual traverses the common barriers to entrepreneurship, the strongest among them being financial capital (Bates, 1993), the fight to become successful has only just begun.

Entrepreneurs are characterized as “movers and shakers” in that they are continually focused on growth and advancing the firm to the next level, the next product and the next market. Entrepreneurs themselves are the strongest component of any initiative that aims to promote the small business foundation of a given area. One of the creators of the pilot program in Littleton, Chris Gibbons, breaks down the EG framework into three components: information, infrastructure and connections. Infrastructure involves creating a framework for a business friendly environment, information is concerned with arming entrepreneurs with data and information that enables entrepreneurs to become successful, while connections revolves around the idea of developing entrepreneurs through continuing education, networking, and investment opportunity initiatives.

The power of who you know speaks volumes in the business world, and networking may be more beneficial to entrepreneurs than any other facet of society. Because financial capital exists as the most influential barrier to entrepreneurship (Bates, p. 255) the success or failure of a given firm may be decided by the connections made with potential business partners or investors. It is crucial for entrepreneurs to seize every opportunity for beneficial connections and it is imperative for EG programs to create the opportunity for entrepreneurs.

3.6 Entrepreneurial Services

Because Economic Gardening programs revolve around entrepreneurial firms and entrepreneurs become successful by adapting to learned lessons and capitalizing on market trends, a major component of any EG program should be to arm firms with data and information. “The primary mission of enterprise development must be to develop entrepreneurs…the secondary challenge is to provide the services necessary to help those entrepreneurs become successful” (Lichtenstein and Lyons, 2001).

In the fast-paced business environment that exists today, entrepreneurs need access timely and accurate information about market trends, advances in technology, business databases, spatial information and supply chain analysis. Access to information databases such as Dunn & Bradstreet, OneSource, ESRI Business Analyst and Claritas SiteReports are expensive. The information provided by these services can play a critical role in small business development, however the cost associated with the databases make them inaccessible for small firms.

The time when entrepreneur intuition was all that was necessary to be competitive and gain substantial growth in a firm is rapidly decreasing. In today's new economy, information and technology plays a major role, and market trends and technology advances move at a much quicker pace today than they did a few years ago and it seems to increase every day. Access to information plays a more important role today in aiding entrepreneurs to gain a competitive advantage in the market.

3.7 Innovation

Innovation is the process of creation, invention and progression; within the business environment the term can be defined as, "a process that begins with an invention, proceeds with the development of the invention and results in the introduction of a new product, process or service to the marketplace" (Edwards and Gordon, 1984). Innovation is the manifestation of ideas to products or services, essentially it is the creation of jobs through invention.

Alliances among firms have proven to be beneficial for innovation (de Man and Guysters, 2005). Collaboration among firms is an integral part of the "connections" pillar as suggested by Christian Gibbons, where free flow of information through networking, mentoring, and education programs offer entrepreneurs and small firms the opportunity to make critical connections that may prove creatively and innovatively beneficial. Many companies are moving

toward a model of “externships” or mentoring programs among companies, in order to provide effective training and knowledge spillover effects (Buchanan, 2011).

Traditional research in the area of innovation focused primarily on large firms, however small firm analysis on innovation reveal that small firms are highly competitive with large firms (Audretsch and Acs, 1987; Audretsch and Acs, 1991). When firms are analyzed by the number of innovations per employee, it becomes evident how powerful small firms are in terms of innovation (Audretsch and Acs, 1987). Innovation is a difficult issue to measure, and it is hard to correlate with entrepreneurial or small firm initiatives simply because access to capital, R&D capability, industry sector differences, and competitive markets cloud the water.

Science, Technology, Engineering, and Mathematics (STEM) occupations are regularly cited as the knowledge-intensive sectors that thrive on a highly educated workforce (Cover et. al., 2011; Terrell, 2007; US Dept. of Commerce, 2011). Occupation data provided by the Bureau of Labor Statistics is available through the Occupation Employment Statistics database down to the Metropolitan Statistical Area geography level. Areas with a workforce specialization in the STEM occupation categories indicates the presence of a highly educated workforce, and areas primed for innovation (US Dept. of Commerce, 2011).

4. Geographic Information Systems in Economic Gardening

Entrepreneurs and small businesses have the capacity to dramatically impact the economic welfare of a given area, and EG initiatives seek to empower these firms for the economic benefit of communities. Information, infrastructure, and connections are the pillar components of standard EG programs. Economic development policy should execute a balanced supply-side and demand-side program for economic development and GIS would aid economic developers in both arenas. For this section, GIS is analyzed as a tool for supplying information to entrepreneurs and small firms.

4.1 GIS in Economic Development

The utilization of GIS in economic development has traditionally aided areas in performing supply-side economic policy (Black, Powers and Roche, 1994; Drummond, 1993; Smersh, 1995). The spatial analysis attributes of GIS make it especially useful in identifying available space inventories for firms considering areas for relocation or expansion sites. GIS caters to identifying real estate that meets various firm requirements (McIntyre, 1994). Market analysis, labor force, target industry and accessibility aspects of an area can be analyzed and displayed graphically (Black, Powers and Roche, 1994). Facility attributes and labor force play a major role in the attractiveness of an area for relocating or expanding firms. Products for advertising the attributes of an area to be used in enticing outside firms logically flow from the traditional view of GIS in economic development.

Recently, the use of GIS has entered the realm of demand-side economic development policy and the demand-side initiatives are gaining interest from many jurisdictions. GIS facilitates, "the ability to target local markets by demographics, lifestyles, and consumer expenditure patterns can be accomplished at an exquisitely fine scale" (Gibbons, 2010). Furthermore, GIS can be used at greater scales to identify export opportunities for local businesses and to identify holes in certain markets (Gibbons, 2010).

Web-based interfaces have added a user-friendly dimension for end-users that is both easy to access and easy to understand. Economic development agencies can provide reports easily through licensed GIS-based resources such as ESRI Community Analyst and Business Analyst, while some agencies have developed GIS-based website interfaces that perform supply-side and demand-side economic development functions for firms. Care for local companies is at the heart of EG and through GIS the functions of identifying customers,

business opportunities and marketing opportunities are easily performed on a spatial scale (Abukhater, 2010).

4.2 Spatial Component of Economic Gardening

All economic development initiatives, attracting, retaining or creating industry, involve geographic considerations (Pittman, 1990). By its nature, the economic development initiatives revolve around a geographic area which is the boundary that defines the jurisdiction of an economic development entity. In-depth analysis within that boundary provides economic developers with an idea of the character, performance and potential of the area.

The adaptive behavior points associated with successful entrepreneurs (Bates,1993 ; Shefsky, 1996; Lichtenstein and Lyons, 2001) often are guided by "spatial positioning" and alertness to profit opportunities that are driven by locational aspects (Andersson, 2005). Increased knowledge of a firm's surroundings increases opportunity for a small firm or entrepreneur to capitalize on firm alliances and potential market opportunities. Innovation and knowledge spillover effects have strong spatial attributes, and small businesses and entrepreneurs have demonstrated the ability to benefit from them. Spatial knowledge benefits small firms and entrepreneurs, which in turn, benefit economies.

5. Case Studies

Case studies are essential for identifying components of successful Economic Gardening programs. The intent for this section is to identify key EG components that have spatial attributes, and analyze a given region for pressence of key components in order to identify fertile areas for EG.

5.1 Littleton, Colorado

As mentioned earlier, Littleton is the birthplace of Economic Gardening. Christian Gibbons and Jim Woods created the idea of EG as a result of the combination of research and experience. The City of Littleton experienced the loss of two major employers in close succession, and the entire local economy suffered as a result. Gibbons and Woods set off on a journey to build upon the strength of small local businesses to drive Littleton back to economic prosperity. The journey began in 1987, and the program has changed dramatically along the way, but the entrepreneurial and small business foundation of the concept remains the same.

Littleton is located Southwest of Denver as pictured in figure 5.1, and is a part of the Denver-Aurora-Broomfield Metropolitan Statistical Area, as pictured in figure 5.2. Littleton makes up 41,737 citizens within the MSA population of 2,543,482 (US Census, 2010). The median age is 41 and the age group of twenty-five to thirty-four accounts for thirteen percent of the population (US Census, 2010)

The Industry with the highest percentage of employment in Littleton is educational services, healthcare and social assistance at twenty percent of total employment . The second and third highest industry employment is professional, scientific, management, administrative, and weste management services at fifteen percent, and arts, entertainment, recreation, accommodation, and food services at thirteen percent of total employment (US Census, 2008-2010 ACS).

Figure 5.1.1: Littleton in relation to Denver, Colorado

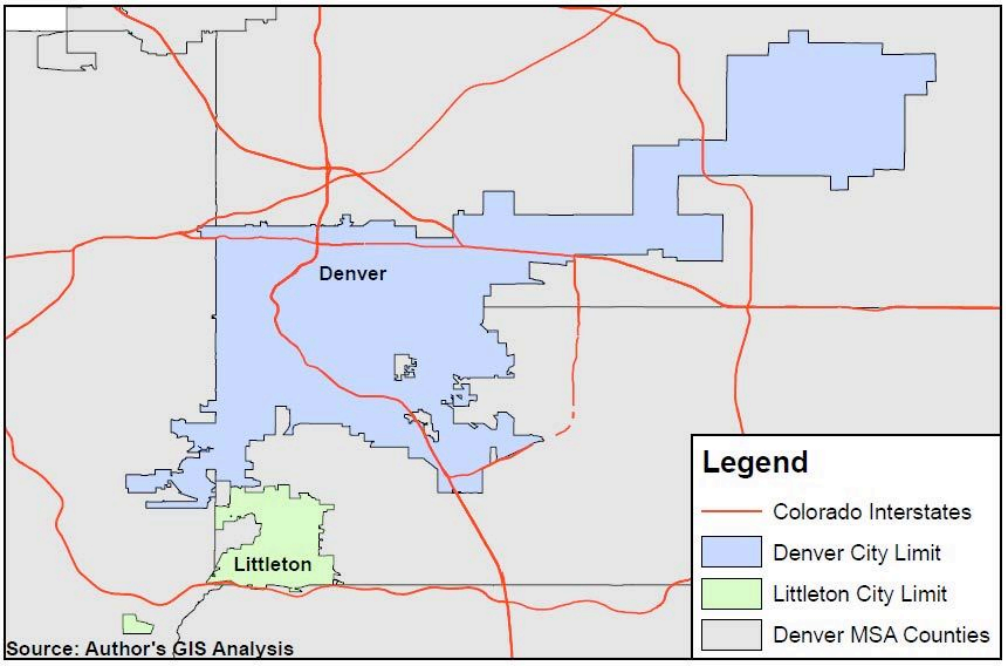
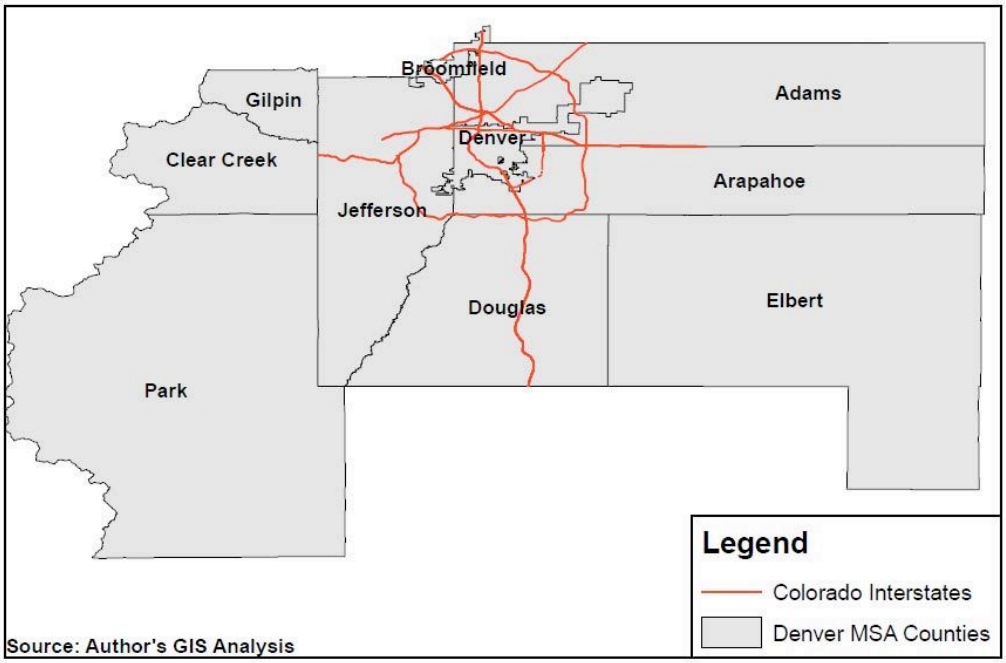


Figure 5.1.2: Denver-Aurora-Broomfield MSA



The Littleton Economic Gardening program was heavily influenced by the initial work of David Birch, the organizers bought into the small business foundation, but as Birch's concept of job creation shifted to a focus on "gazelles," the Littleton program shifted as well. They shifted

from a focus on the size of the business to the concept of the rate of growth (Gibbons, 2006). To isolate the difference between high-growth companies and the others Gibbons focused on the ideas of innovation, temperament, the internal makeup of companies, the edge of chaos theory, and the idea of increasing returns.

Recognizing that new ideas spurred growth for many small companies, the Littleton program attempted to develop superior business people through a seminar series, but experienced very little impact in business growth. In an attempt to understand the internal composition of high-growth and low or no-growth companies, the program team analyzed the temperament of entrepreneurs and business leaders themselves and the internal "biological nature" of businesses (Gibbons, 2006). They discovered that the very nature of business leaders drove companies into a high-growth category. Through the work of the Santa Fe Institute, the program team came to recognize the biological side of businesses; that they are living components existing in a complex environment. One in which they react and adapt to on with regularity. It is this adaptation that defines successful companies and escapes low or no-growth businesses. The chosen metaphor for Chris Gibbons (2006) to describe the environment within which adaptation is essential is called the "edge of chaos." Much like the nature of water, businesses can exist in frozen (ice), stable (water), or chaotic (steam) states. The businesses that can react and adapt and stay at the crest of the metaphorical wave, between stability and chaos (the edge of chaos) will stay ahead of the others and experience success and growth (Gibbons, 2006).

Most of the analysis done by the Littleton team focused on the internal nature and structure of businesses and organizations, however they recognized that location and character of the local economy plays a role in the companies present in the local economy, the ability of local companies to grow and drive the local economy, and the prospect of attracting business relocations from outside the area. By researching the work of economist Brian Arthur, they

identified the power of increasing returns for local economies. Arthur's work contends that winners continue to win because of previous success. It is a type of self-fulfilling prophecy, for example, in collegiate sports, good athletes choose to play for good teams because good teams win – because good athletes go there. In a local economy, a business may be attracted to a certain geographic location because it is known to produce successful companies in a similar industry, all because good companies continue to relocate there and become successful. This momentum is hard to create or replicate, but understanding that power, and focusing on the strengths of the local economy can empower a locality to capitalize on them.

The Littleton Economic Gardening pilot program traversed many different phases as the directors shaped and molded the program into something effective, a program that is characterized by Christian Gibbons as a "grand experiment" (Gibbons, 2006). The experiment may be in its infancy, but the Littleton program has made quite an impact in the local community; the number of jobs has doubled to around thirty thousand and sales tax revenues have tripled since the inception of the program, which includes two major recessions, and all without spending a single dollar on financial incentives to attract outside businesses (Hamilton-Pennell, 2004).

The heart and soul of the Littleton EG program lies with empowering small businesses and entrepreneurs and revolves around three pillars: information, infrastructure, and connections (Gibbons, 2006). In the current economy, access to information is critical for high-growth companies. Information databases and GIS are expensive so small businesses and entrepreneurs rarely have access to timely, accurate and actionable information that drives marketing, innovation or adaptation to stay ahead of competition. The Littleton EG program provides in-depth information to businesses that traditionally was only available to large corporations, including marketing information, market reports, industry trends, new product

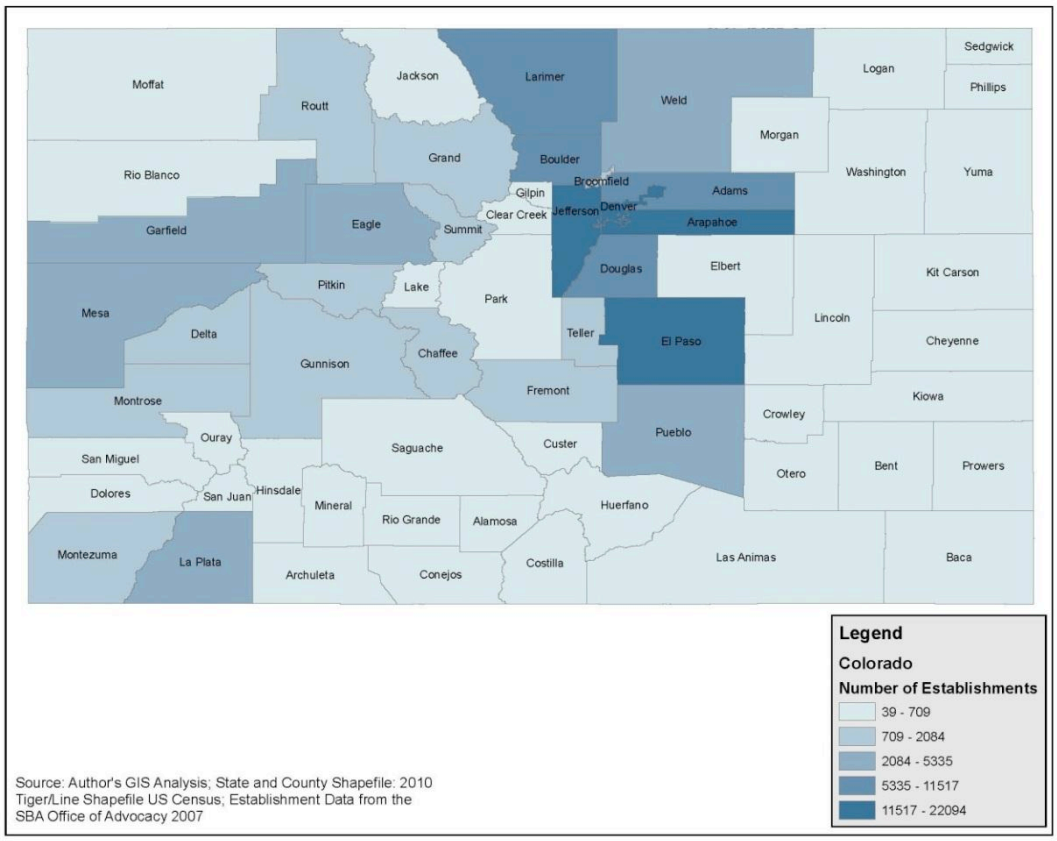
tracking, legislative research, custom business information, GIS analysis, real estate information, monitoring of local businesses, and vacant property.

A dedication to infrastructure for the Littleton Economic Gardening program means more than just roads and utilities, it means a dedication to quality of life initiatives that are going to create a high-quality living environment for residents. The mantra for the Littleton EG program is that community development is economic development. In the new economy, wealth and jobs are being created by "knowledge firms," so creating an environment that is both attractive to entrepreneurs and the talent they require to grow is vital.

The third critical element of the Littleton program is the idea of connections, to include trade associations, think tanks, academic institutions, industry clusters and CEOs. Following the idea that is promoted by "network theory," that increased business or industry connections increases the ability for innovation for a given company (Gibbons, 2006). The Littleton EG program is focused on creating relationships among the local companies, to foster a network that will drive innovation and potential growth.

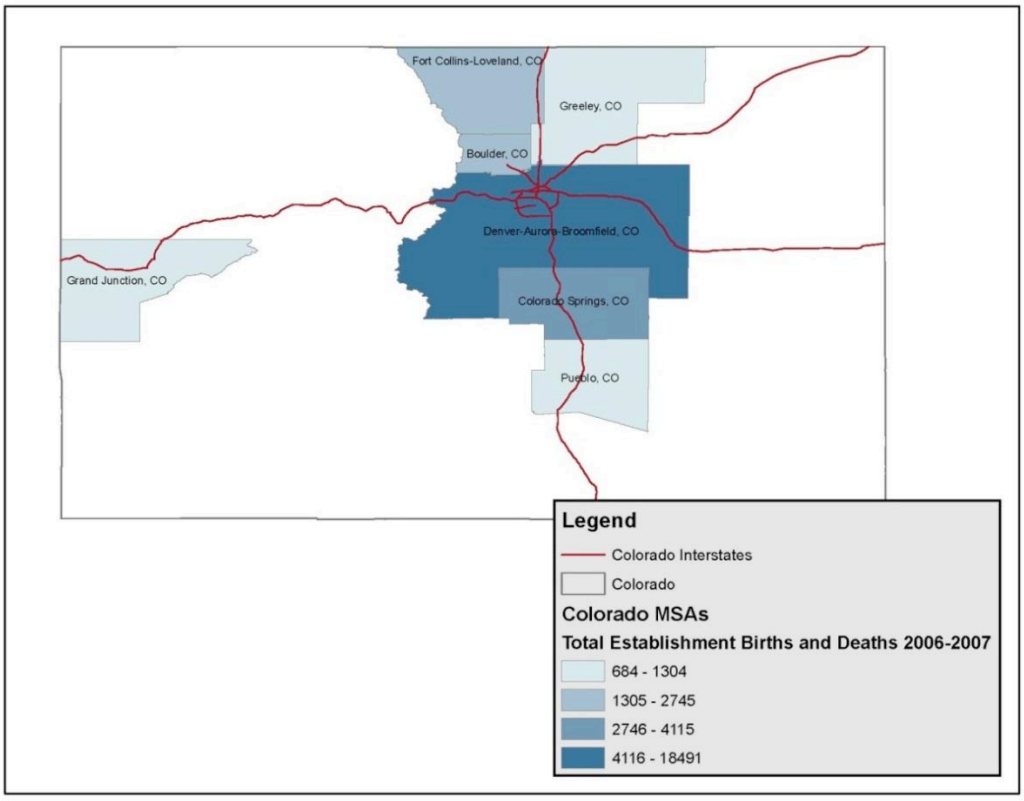
Colorado's business activity centers around the Denver-Aurora-Broomfield Metropolitan Statistical area as indicated in Figure 5.3 below. As of 2007, Arapahoe County, for which Littleton is the County Seat, reported a total of 17,561 local establishments and a total of 249,276 employees (Office of Advocacy, U.S. Small Business Administration, from data provided by the U.S. Census Bureau, 2007).

Figure 5.1.3: Colorado County Establishments 2007



A “chaotic” business invironment can drive innovation among local companies by spurring adaptation to market conditions. In an attempt to graphically display the “edge of chaos” business environment mentioned earlier, using US Census data, total establishment births and deaths for a given area can signal business creation and failing activity. The combined establishment birth and death data for Colorado MSAs are displayed in Figure 5.4 below.

Figure 5.1.4: Colorado MSAs | Total Establishment Births and Deaths 2006-2007

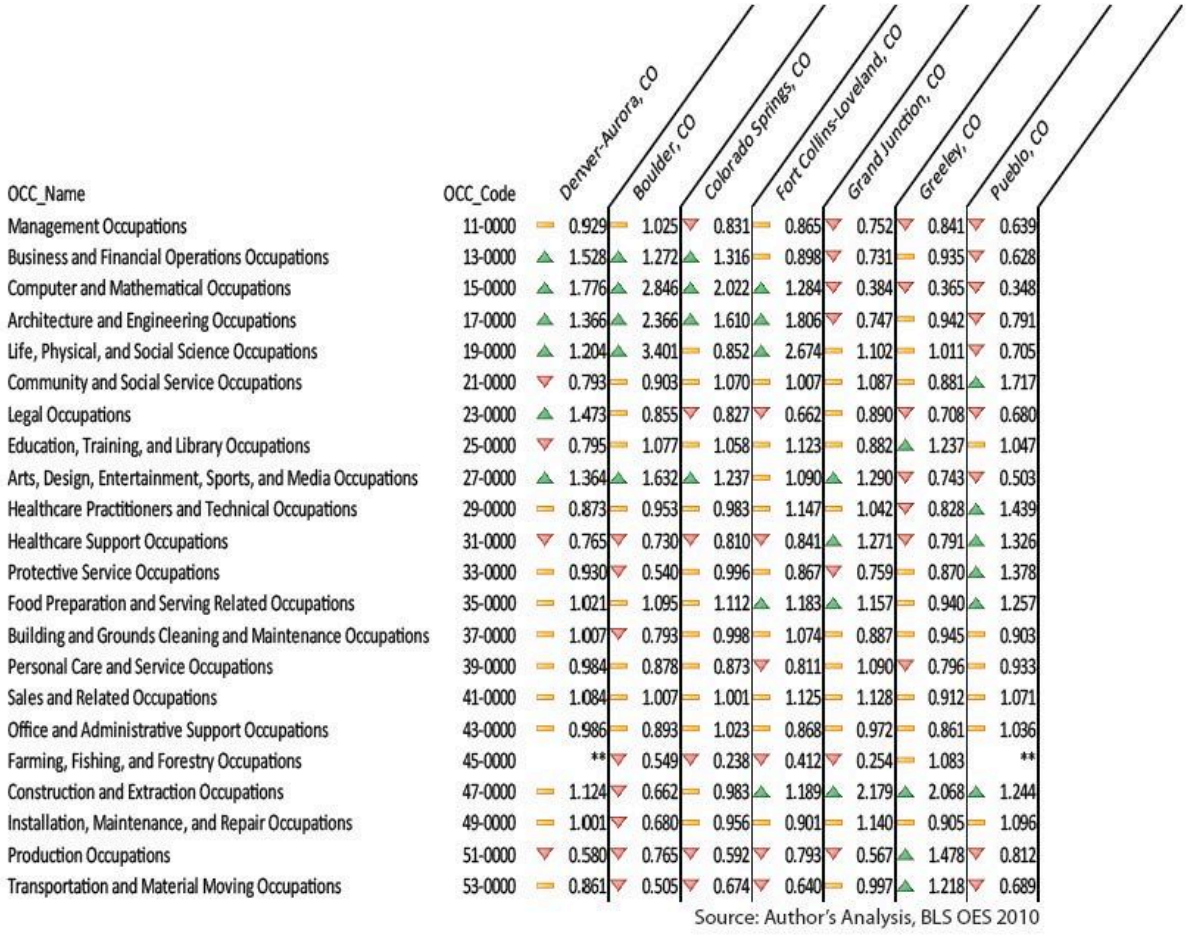


Most of the "chaotic" business activity is located in the Denver-Aurora-Broomfield Metropolitan Statistica Area. This is a logical outcome that the area with the greatest number of firms overall would have the most turnover for businesses.

5.2 Location Quotient Analysis

Utilizing Occupation Employment Statistics for 2010 from the Bureau of Labor Statistics, analysis of the major occupation categories reveals that the Denver-Aurora, Boulder, Colorado Springs and Fort Collins – Loveland Metropolitan Statistical Areas all have strengths in the occupation categories that are associated with the higher-knowledge sectors including Computer and Mathematical, Architecture and Engineering, and Life, Physical, and Social Science Occupations, categories 15-0000, 17-0000, and 19-000 respectively. The location quotient analysis is displayed in table 5.2.1.

Figure 5.2.1: Colorado MSA OES Location Quotients



OCC_Name	OCC_Code	Denver-Aurora, CO	Boulder, CO	Colorado Springs, CO	Fort Collins-Loveland, CO	Grand Junction, CO	Greeley, CO	Pueblo, CO
Management Occupations	11-0000	0.929	1.025	0.831	0.865	0.752	0.841	0.639
Business and Financial Operations Occupations	13-0000	1.528	1.272	1.316	0.898	0.731	0.935	0.628
Computer and Mathematical Occupations	15-0000	1.776	2.846	2.022	1.284	0.384	0.365	0.348
Architecture and Engineering Occupations	17-0000	1.366	2.366	1.610	1.806	0.747	0.942	0.791
Life, Physical, and Social Science Occupations	19-0000	1.204	3.401	0.852	2.674	1.102	1.011	0.705
Community and Social Service Occupations	21-0000	0.793	0.903	1.070	1.007	1.087	0.881	1.717
Legal Occupations	23-0000	1.473	0.855	0.827	0.662	0.890	0.708	0.680
Education, Training, and Library Occupations	25-0000	0.795	1.077	1.058	1.123	0.882	1.237	1.047
Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	1.364	1.632	1.237	1.090	1.290	0.743	0.503
Healthcare Practitioners and Technical Occupations	29-0000	0.873	0.953	0.983	1.147	1.042	0.828	1.439
Healthcare Support Occupations	31-0000	0.765	0.730	0.810	0.841	1.271	0.791	1.326
Protective Service Occupations	33-0000	0.930	0.540	0.996	0.867	0.759	0.870	1.378
Food Preparation and Serving Related Occupations	35-0000	1.021	1.095	1.112	1.183	1.157	0.940	1.257
Building and Grounds Cleaning and Maintenance Occupations	37-0000	1.007	0.793	0.998	1.074	0.887	0.945	0.903
Personal Care and Service Occupations	39-0000	0.984	0.878	0.873	0.811	1.090	0.796	0.933
Sales and Related Occupations	41-0000	1.084	1.007	1.001	1.125	1.128	0.912	1.071
Office and Administrative Support Occupations	43-0000	0.986	0.893	1.023	0.868	0.972	0.861	1.036
Farming, Fishing, and Forestry Occupations	45-0000	**	0.549	0.238	0.412	0.254	1.083	**
Construction and Extraction Occupations	47-0000	1.124	0.662	0.983	1.189	2.179	2.068	1.244
Installation, Maintenance, and Repair Occupations	49-0000	1.001	0.680	0.956	0.901	1.140	0.905	1.096
Production Occupations	51-0000	0.580	0.765	0.592	0.793	0.567	1.478	0.812
Transportation and Material Moving Occupations	53-0000	0.861	0.505	0.674	0.640	0.997	1.218	0.689

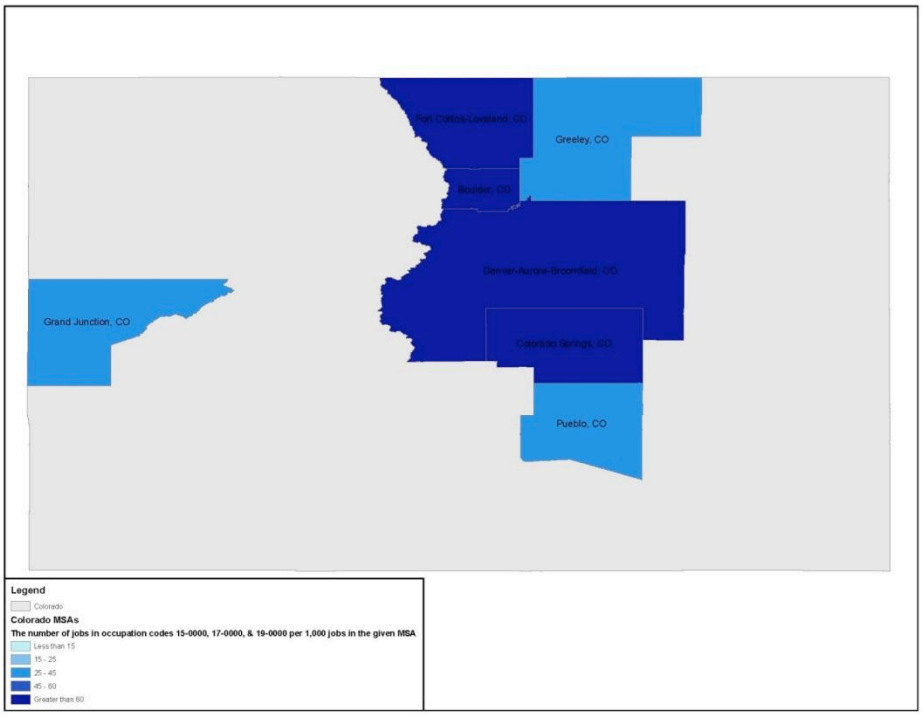
Source: Author's Analysis, BLS OES 2010

The area specializations in occupation sectors that include Science, Technology, Engineering and Mathematics (STEM) occupations indicate a highly educated workforce and the possibility of a fertile area for innovation and competitiveness for companies.

5.3 STEM Jobs Per 1000 Analysis

An employment analysis was performed using the occupational Employment Statistics from the Bureau of Labor Statistics, the Science, Technology, Engineering, and Mathematics major occupation sectors of 15-0000, 17-0000, and 19-0000 were analyzed for the five case study areas using the same standardized scale. Figure 5.3.1 below shows the number of jobs in the chosen sectors per one thousand jobs in the individual Metropolitan Statistical Areas. The data is only available for the MSAs shown, however, when compared with the other case study areas that follow, it is clear that Colorado's workforce disposition is one of a highly educated workforce and knowledge intensive business activity.

Figure 5.3.1: Colorado MSAs | Number of Jobs in Occupation Codes 15-0000, 17-0000, & 19-0000 per 1000 Jobs



5.4 Lessons Learned – Littleton Economic Development Program

The Littleton Economic Gardening program is effectively the national pilot program, and as such the creators experienced a steep learning curve, have adapted, and reached a level of

success that is surely the source of envy among similar sized municipalities that have had much worse experiences during the "Great Recession." The greatest source of strength for the Littleton program is built upon the knowledge and drive of the economic development department. Given Littleton's close proximity to Denver, they could easily have stayed in the big-hunt game for company relocations, and they would have experienced success. However, they are now experiencing the long-term benefits of EG; regardless of what large outside corporations do, or the greater economy for that matter, Littleton is primed for success and resilience in an uncertain economic future the nation is experiencing.

They rely on the power of information and the innovative nature of entrepreneurs and small businesses to set the foundation upon which they can do the things they do best; they are dedicated to the quality of life for the city, and they seek to link every entrepreneur and small business in a network that will drive innovation and create social wealth. The business setting is preferencial for EG in that there is a high number of business establishments and there is a high amount of turnover, driving businesses to innovate and adapt on the "edge of chaos" or fall behind. They are focused on the "knowledge firms," and believe that setting the framework and environment for high-knowledge firms is the key to business growth, business retention, and economic development.

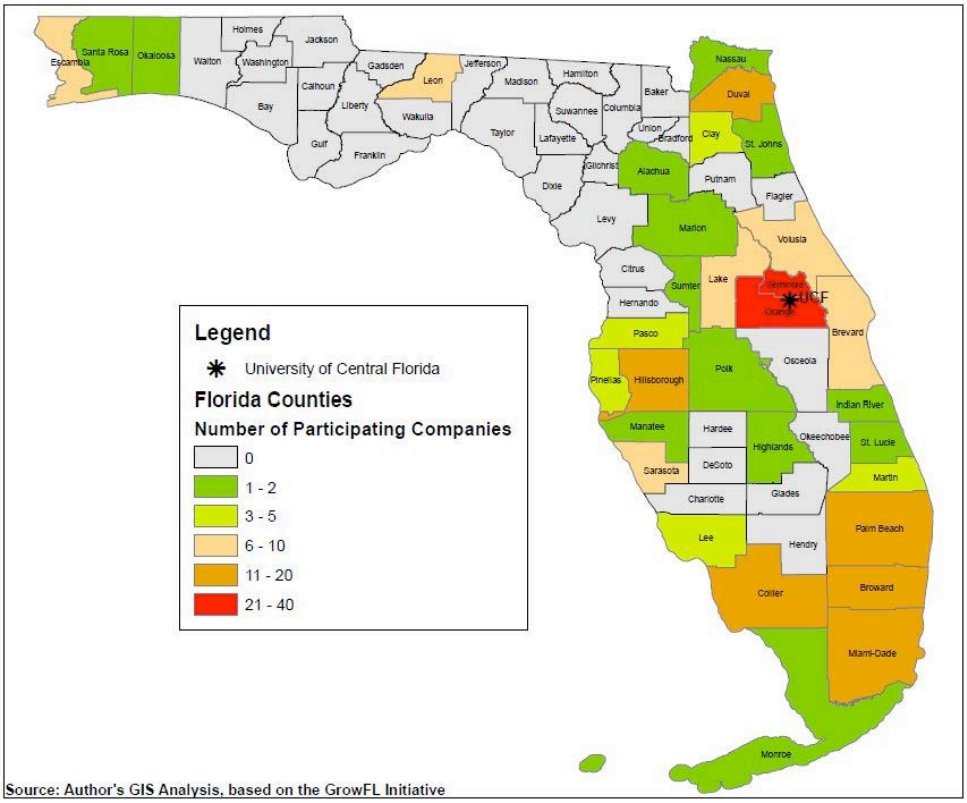
5.5 Florida – GrowFL

The State of Florida approved a statewide Economic Gardening program in 2009 and renewed it in 2010, total funding for the program as of 2010 was at $3.5 million. The University of Central Florida (UCF) was selected by the Florida Office of Tourism, Trade, and Economic Development to serve as the administrator of the Florida Economic Gardening Program. UCF created the Florida Economic Gardening Institute or GrowFL as the UCF agency to run the initiative. The intent for the program was to provide technical assistance to second stage small

businesses, which included privately held businesses with ten to fifty workers, generating one million to twenty-five million dollars in revenue, that are identified as working in an industry on the State of Florida's Qualified Target Industry List, and have experienced revenue and employment growth in the previous three years (GrowFL, 2011). As of 2009, GrowFL estimated the number of eligible companies to be between five and seven thousand.

As of September 2011, GrowFL provided technical assistance to 250 companies located throughout the State of Florida, figure 5.3 below details the locations and number of companies assisted. Technical assistance usually consisted of around forty hours of consulting time and depending on the company and the industry the further assistance consists of market research, sales opportunity analysis, competitor's strategies, target/contact lead lists, raw material locations, funding/capital investment investigation, customer analysis, creating a connection network, and locating new employees (GrowFL, 2011).

Figure 5.5.1: GrowFL Program Coverage Map as of September 2011



Source: Author's GIS Analysis, based on the GrowFL Initiative

The connection component of the Florida Economic Gardening program consists primarily of CEO roundtable groups, which were made up of groups of ten to fifteen non-competing second stage company CEOs that meet ten times a year to engage in open discussion about the challenges of business.

Information and connections are the focus of the GrowFL Economic Gardening program, and that framework have proven successful, as of August 2011 an economic impact study commissioned by UCF found that the GrowFL program a total of 3,285 jobs, had a financial impact that exceeded $510.4 million, and generated $18.17 million in state and local taxes, more than paying back the $3.5 million in funding in just over twenty two months (GrowFL, 2011).

According to Census data, the major metropolitan areas of Miami, Tampa, Orlando, and Jacksonville maintain a large share of the total business establishments for the State of Florida, displayed in figure 5.3.2. We can compare the massing of businesses with the map of participating companies, figure 5.3.1, above. The counties with the most participating companies are located immediately around the headquarter location and the University of Central Florida, but the areas with the most involvement beyond the immideately surrounding areas are the parts of the state with the greatest number of companies. This pattern suggests the power of a centralized location on the surrounding areas, but it also notes the power of large metro areas with a high volume of business establishments.

The chaos analysis for the State of Florida, figure 5.3.4, indicates that the areas of the highest number of new businesses and business failures are located in the major MSAs of Miami, Tampa, and Jacksonville areas. Just as in the Colorado analysis, major population centers seem more suited than rural areas for Economic Gardening Initiatives.

Figure 5.5.2: Florida Total Establishments by County

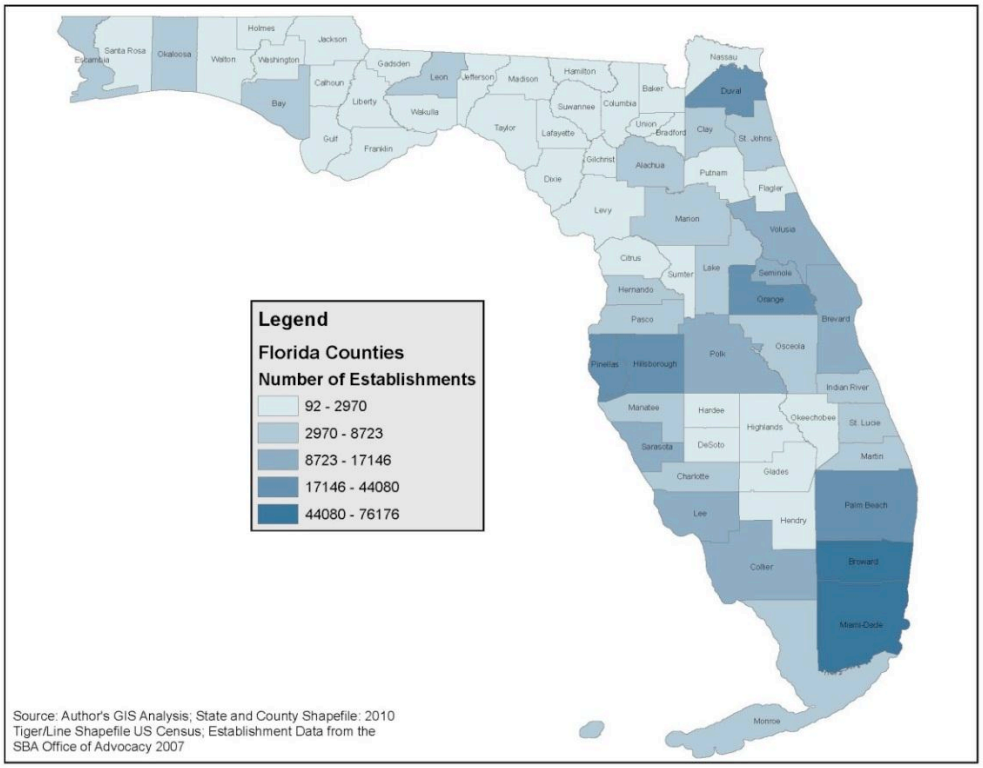
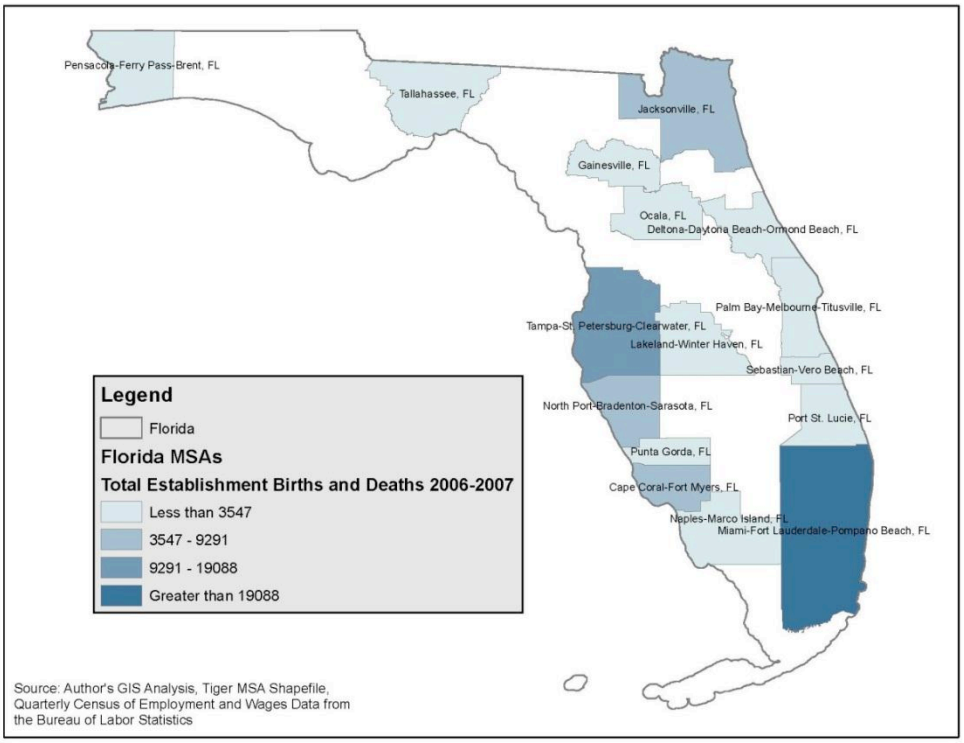


Figure 5.5.3: Florida MSA Establishment Births and Deaths 2006-2007



5.6 Location Quotient Analysis

Location Quotient analysis for Metropolitan Statistical Areas in the State of Florida reveal specializations in the following sectors: Protective Service, Food Preparation and Serving, Building and Grounds Cleaning and Maintenance, and Sales Related Occupations, codes 33-0000, 35-0000, 37-0000, and 41-0000 respectively. The table below displays the Occupation Employment Statistics location quotients for MSAs in the State of Florida.

Figure 5.6.1: Florida MSA OES Location Quotients

OCC_Title	OCC_Code	Miami-Fort Lauderdale-Pompano Beach, FL	Cape Coral-Fort Myers, FL	Crestview-Fort Walton Beach-Destin, FL	Deltona-Daytona Beach-Ormond Beach, FL	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL Metropolitan Division	Gainesville, FL	Jacksonville, FL	Miami-Miami Beach-Kendall, FL Metropolitan Division	Naples-Marco Island, FL	North Port-Bradenton-Sarasota, FL	Ocala, FL	Orlando-Kissimmee, FL	Palm Bay-Melbourne-Titusville, FL	Port St. Lucie, FL	Punta Gorda, FL	Sebastian-Vero Beach, FL	Tallahassee, FL	Tampa-St. Petersburg-Clearwater, FL	Pensacola-Ferry Pass-Brent, FL
Management Occupations	11-0000	0.695	0.642	0.653	0.543	0.687	0.511	0.694	0.680	0.653	0.702	0.462	0.713	0.644	0.531	0.463	0.539	0.689	0.726	0.532
Business and Financial Operations Occupations	13-0000	1.072	0.726	1.380	0.748	1.050	1.096	1.212	1.072	0.832	0.847	0.766	1.055	1.120	0.754	0.636	0.693	2.232	1.332	0.946
Computer and Mathematical Occupations	15-0000	0.806	0.396	1.271	0.415	0.937	0.854	1.081	0.697	0.333	0.456	0.326	0.988	1.466	0.359	0.274	0.269	1.568	1.053	0.621
Architecture and Engineering Occupations	17-0000	0.620	0.501	2.605	0.597	0.629	0.837	0.856	0.549	0.348	0.563	0.607	0.845	3.488	0.537	0.257	0.502	0.796	0.814	0.857
Life, Physical, and Social Science Occupations	19-0000	0.491	0.529	0.786	0.364	0.375	1.916	0.604	0.519	0.455	0.493	**	0.691	0.718	0.751	0.435	0.456	1.750	0.683	0.825
Community and Social Service Occupations	21-0000	0.812	0.671	0.717	1.201	0.772	0.937	0.762	0.889	0.514	0.684	0.905	0.578	0.727	1.021	0.648	0.508	0.996	0.753	0.927
Legal Occupations	23-0000	1.777	1.101	0.871	0.965	1.739	0.867	0.968	1.914	0.981	1.140	0.945	1.095	0.836	0.871	0.894	1.145	2.701	1.479	1.041
Education, Training, and Library Occupations	25-0000	0.781	**	0.878	0.889	0.730	1.777	0.747	0.777	**	0.699	**	0.742	0.750	0.963	0.725	0.763	1.134	0.825	1.035
Arts, Design, Entertainment, Sports, and Media (	27-0000	0.955	0.921	0.598	0.760	0.864	1.074	0.716	1.075	0.705	1.159	0.449	1.147	0.633	0.613	0.522	0.693	1.208	0.897	0.663
Healthcare Practitioners and Technical Occupatic	29-0000	1.024	1.150	0.771	1.143	0.994	1.775	1.006	1.041	1.087	1.235	1.239	0.904	1.170	1.098	1.551	1.314	1.013	1.136	1.232
Healthcare Support Occupations	31-0000	0.940	1.008	0.646	1.234	0.865	1.248	0.859	0.914	0.838	1.430	1.364	0.694	1.082	1.106	1.567	1.131	0.723	1.109	1.230
Protective Service Occupations	33-0000	1.514	1.010	1.004	1.160	1.409	0.941	1.052	1.606	1.095	0.899	1.300	1.040	1.117	1.152	1.352	1.037	1.172	0.950	1.205
Food Preparation and Serving Related Occupatio	35-0000	1.056	1.394	1.512	1.363	1.042	1.082	1.004	0.986	1.613	1.447	1.055	1.375	1.108	1.247	1.499	1.368	1.034	1.057	1.155
Building and Grounds Cleaning and Maintenance	37-0000	1.197	1.334	1.129	1.474	1.106	1.188	0.983	1.105	2.109	1.400	1.122	1.445	0.971	1.295	1.177	1.641	1.103	1.034	0.996
Personal Care and Service Occupations	39-0000	1.036	1.147	1.071	1.084	1.011	0.917	0.940	1.046	1.266	1.035	1.092	1.286	0.815	1.048	0.839	1.223	0.968	0.890	0.860
Sales and Related Occupations	41-0000	1.268	1.298	1.235	1.233	1.341	0.856	1.150	1.238	1.222	1.175	1.214	1.288	1.009	1.235	1.350	1.336	0.937	1.169	1.191
Office and Administrative Support Occupations	43-0000	1.205	1.078	0.942	1.134	1.201	1.059	1.217	1.250	0.968	1.049	1.146	1.051	1.044	1.064	1.258	1.019	1.084	1.152	1.149
Farming, Fishing, and Forestry Occupations	45-0000	0.953	1.215	0.272	0.383	0.110	0.185	0.231	1.048	**	0.847	1.740	0.525	**	5.490	**	7.569	0.647	0.647	0.337
Construction and Extraction Occupations	47-0000	0.826	1.522	0.948	1.172	0.956	0.731	1.008	0.662	1.570	1.173	1.234	0.945	0.931	1.404	1.044	1.093	0.838	0.885	1.213
Installation, Maintenance, and Repair Occupatio	49-0000	0.991	1.221	1.184	0.994	1.081	0.930	1.113	0.956	1.086	1.058	1.029	1.046	1.111	1.081	1.080	1.099	0.801	0.987	1.302
Production Occupations	51-0000	0.505	0.447	0.528	0.628	0.534	0.470	0.638	0.530	0.419	0.686	0.772	0.541	0.796	0.508	0.270	0.534	0.299	0.653	0.566
Transportation and Material Moving Occupations	53-0000	0.865	0.685	0.541	0.594	0.882	0.538	1.071	0.995	0.654	0.656	0.862	0.841	0.568	0.804	0.581	0.641	0.474	0.803	0.569

Source: Author's Analysis, BLS OES 2010

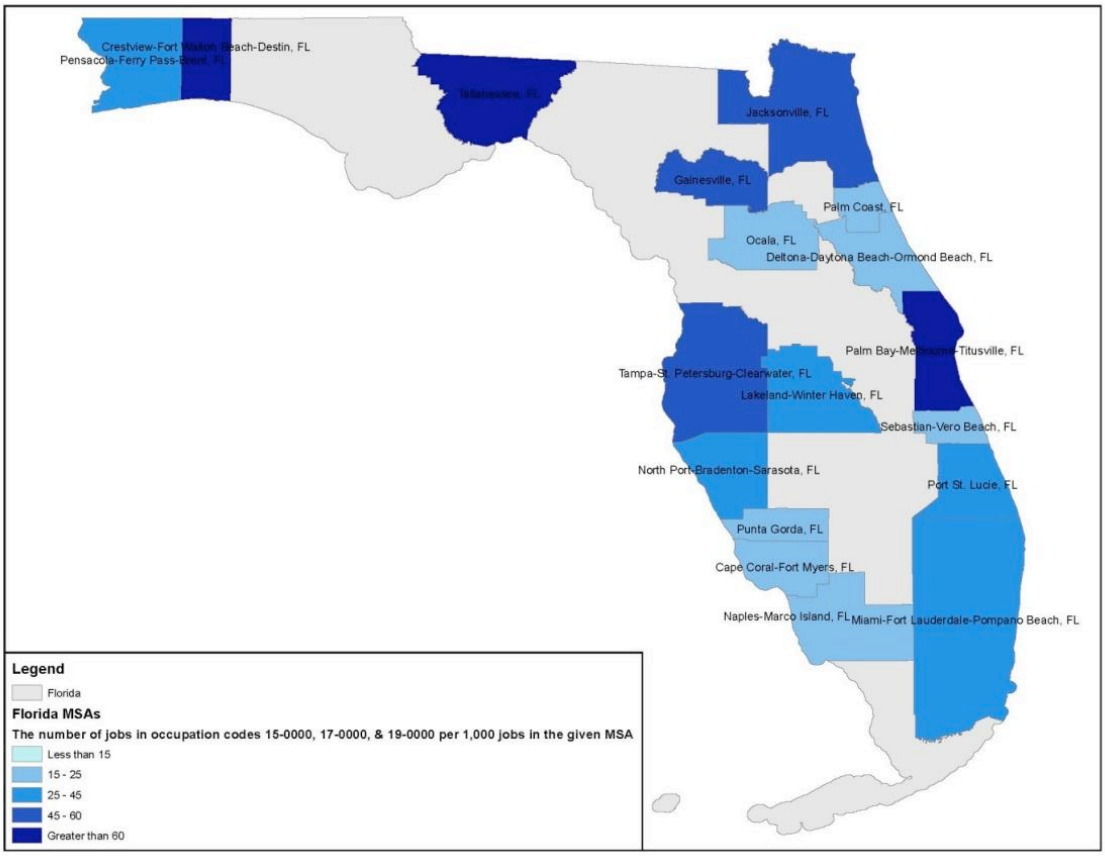
The Metropolitan Statistical Areas of Crestview-Fort Walton Beach-Destin, Palm Bay-Melbourne-Titusville, and Tallahassee show workforce specializations in the high-knowledge

major occupation categories noted in the analysis for Colorado MSAs. The Florida occupation location quotients seem to follow the service-oriented population.

5.7 STEM Jobs Per 1000 Analysis

The number of jobs per one thousand total jobs for the STEM major occupation areas follows the location quotient anlaysis as the areas with a workforce specializing in STEM occupations are located in the Crestview-Fort Walton-Destin, Tallahassee, and Palm Bay-Melbourne-Titusville Metropolitan Statistical Areas, as indicated in Figure 5.7.1. The areas with high knowledge occupation specialties are not specifically found in areas with the highest business activity or in the areas with the highest relative Economic Gardening activity. This could be because of the high volume of service-related business activity.

Figure 5.7.1: Florida MSAs | Number of Jobs in Occupation Codes 15-0000, 17-0000, & 19-0000 per 1000 Jobs



5.8 Lessons Learned – GrowFL

A focus on Information and Connections is an effective Economic Gardening framework. Legislative support was crucial for the startup for the initiative and a strong university-centered economic development command team was effective in the implementation of the program. Strong partnerships among economic development agencies and local municipalities were a key component in implementing a state-wide strategy. Internet-based collaboration tools allowed the free-flow of information to pass between the command element and the recipient companies and local governments. The areas of the most involvement were the areas immediately surrounding the consolidated headquarter site, but other areas of the most activity were centered on major metropolitan areas.

5.9 Indiana Business Growth Network

North Central Indiana (NCI) is the Economic Gardening focus of the Indiana Business Growth Network (IBGN), an initiative led by the Purdue Center for Regional Development (PCRD) through a partnership with Elevate Ventures, a not-for-profit organization focused on developing emerging and existing businesses into high-growth enterprises. Indiana communities have an economic development history of targeting business relocations, mainly in the industrial sector. Northern Indiana has a rich manufacturing history, and has subsequently suffered as a result of the decline of the auto industry and the technologically-driven new economy (IEDC, pp 187). NCI has experienced limited success in attracting relocations from large outside corporations, and communities have realized a need for a more innovative approach to economic development.

As of 2011, IGBN was focused on businesses in the Northern region of Indiana, and only for companies fitting the following criteria: for-profit and privately held, employ between 10-100 people, maintain a principle location in Indiana for the previous two years, generate between

$750,000 and $10 million in annual revenue, and have grown in employment or gross revenues during two of the previous five years (PCRD, 2011).

IGBN is focused on four key principles: core business strategy, market intelligence, qualified leads, and leadership management team development (PCRD, 2011). Technical assistance includes market analysis, customer demographics mapping, competitor evaluation, industry trend analysis, product tracking, and search engine optimization. The Purdue Center for Regional Development partners with local official, economic development agencies and community leaders who direct companies matching the criteria to engage with IGBN for assistance.

A geographic analysis of the business environment of the State of Indiana reveals that the Indianapolis area and the Northernmost counties contain the highest concentrations of business establishments, displayed in figure 5.6.1 below. The areas of the highest amount of business turnover is found in the Indianapolis-Carmel Metropolitan Statistical Area followed by the northern MSAs.

Figure 5.9.1: Indiana Counties Number of Establishments 2007

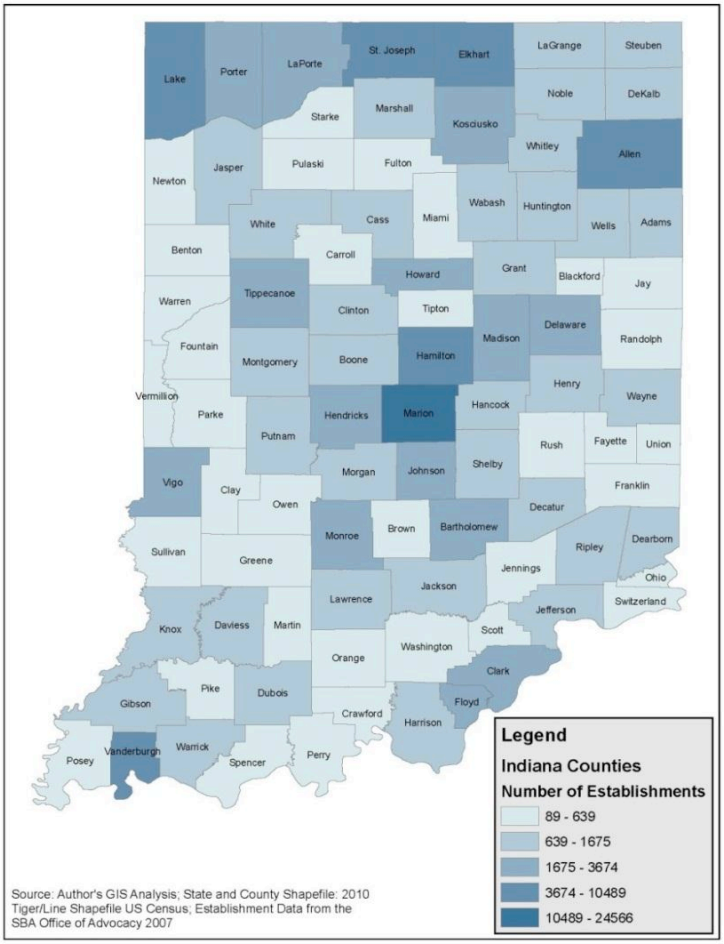
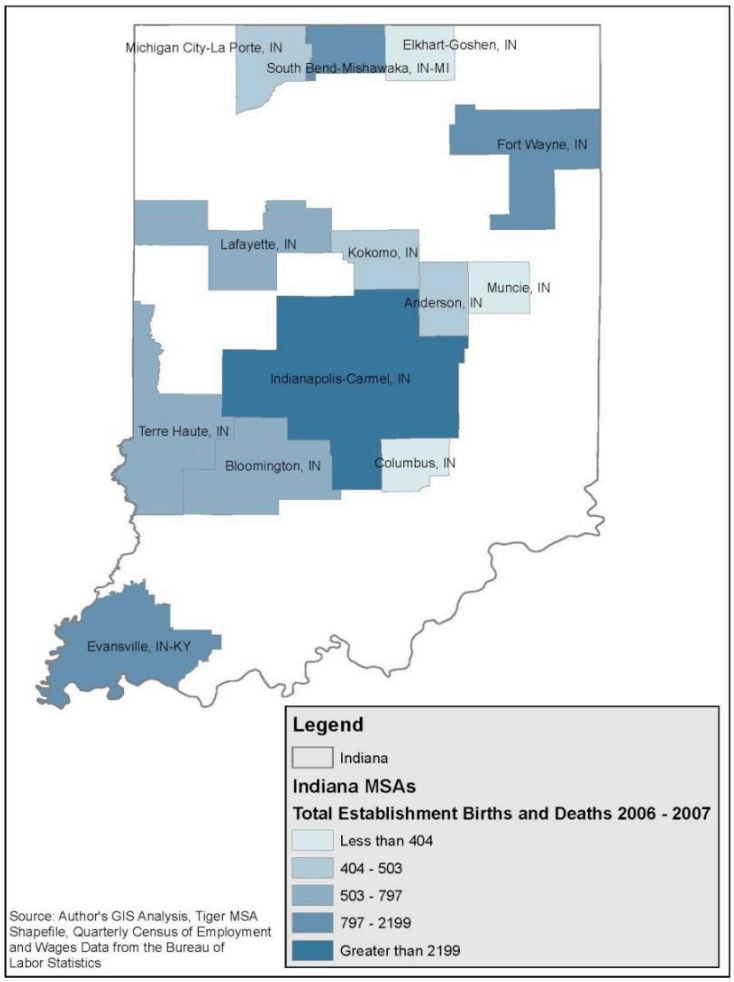


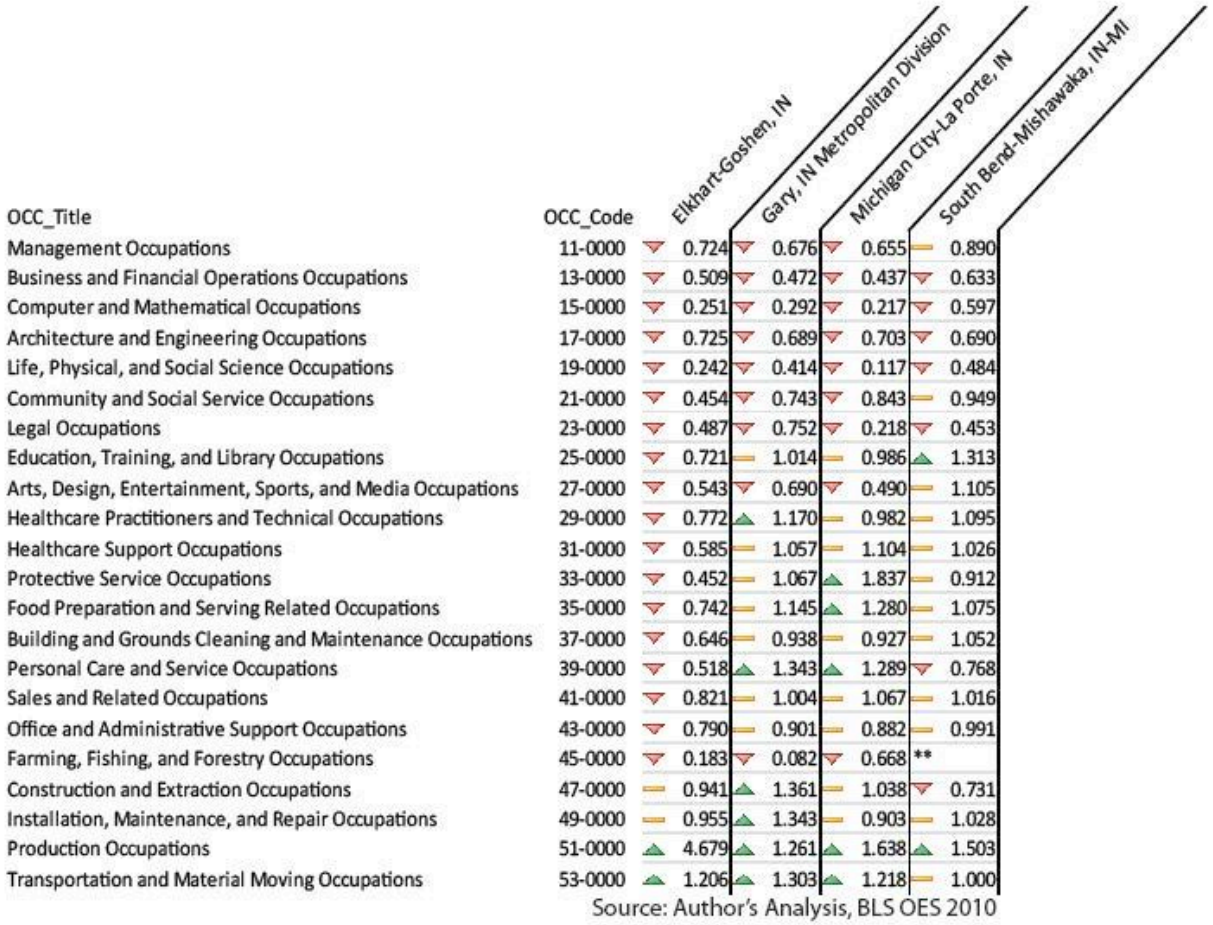
Figure 5.9.2: Indiana MSA Establishment Births and Deaths 2006-2007



5.10 Location Quotient Analysis

The location quotient analysis for the State of Indiana paints a picture of their manufacturing and logistics past, and suggests that the employment strength of the Northern Indiana Metropolitan Statistical Areas continues to be production and transportation occupations.

Figure 5.10.1: Indiana MSA OES Location Quotients



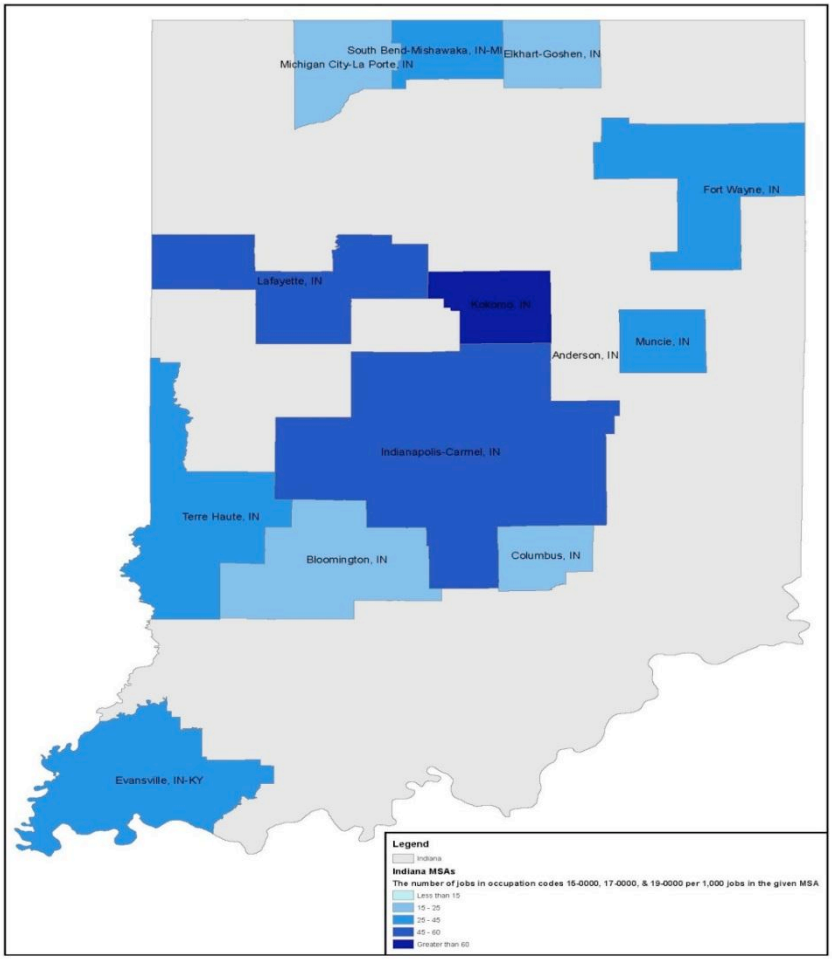
OCC_Title	OCC_Code	Elkhart-Goshen, IN	Gary, IN Metropolitan Division	Michigan City-La Porte, IN	South Bend-Mishawaka, IN-MI
Management Occupations	11-0000	0.724	0.676	0.655	0.890
Business and Financial Operations Occupations	13-0000	0.509	0.472	0.437	0.633
Computer and Mathematical Occupations	15-0000	0.251	0.292	0.217	0.597
Architecture and Engineering Occupations	17-0000	0.725	0.689	0.703	0.690
Life, Physical, and Social Science Occupations	19-0000	0.242	0.414	0.117	0.484
Community and Social Service Occupations	21-0000	0.454	0.743	0.843	0.949
Legal Occupations	23-0000	0.487	0.752	0.218	0.453
Education, Training, and Library Occupations	25-0000	0.721	1.014	0.986	1.313
Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	0.543	0.690	0.490	1.105
Healthcare Practitioners and Technical Occupations	29-0000	0.772	1.170	0.982	1.095
Healthcare Support Occupations	31-0000	0.585	1.057	1.104	1.026
Protective Service Occupations	33-0000	0.452	1.067	1.837	0.912
Food Preparation and Serving Related Occupations	35-0000	0.742	1.145	1.280	1.075
Building and Grounds Cleaning and Maintenance Occupations	37-0000	0.646	0.938	0.927	1.052
Personal Care and Service Occupations	39-0000	0.518	1.343	1.289	0.768
Sales and Related Occupations	41-0000	0.821	1.004	1.067	1.016
Office and Administrative Support Occupations	43-0000	0.790	0.901	0.882	0.991
Farming, Fishing, and Forestry Occupations	45-0000	0.183	0.082	0.668	**
Construction and Extraction Occupations	47-0000	0.941	1.361	1.038	0.731
Installation, Maintenance, and Repair Occupations	49-0000	0.955	1.343	0.903	1.028
Production Occupations	51-0000	4.679	1.261	1.638	1.503
Transportation and Material Moving Occupations	53-0000	1.206	1.303	1.218	1.000

Source: Author's Analysis, BLS OES 2010

5.11 STEM Jobs Per 1000 Analysis

The number of Science, Technology, Engineering, and Mathematics jobs per one thousand total jobs in Indiana Metropolitan Statistical Aareas reveals a localization around the Indianapolis-Carmel MSA. The Kokomo MSA has the strongest STEM specialization and Lafayette, Fort Wayne, and South Bend-Mishawaka MSAs follow for the Northern Indiana Area.

Figure 5.11.1: Indiana MSAs | Number of Jobs in Occupation Codes 15-0000, 17-0000, & 19-0000 per 1000 Jobs



5.12 Lessons Learned – Indiana Business Growth Network

The Indiana Business Growth Network is focused on only a portion of the state for the pilot-project portion of their Economic Gardening initiative, the North Central Indiana area was selected due to the regions need for a more innovative economic development strategy to meet their more complex economic issues. A university-based institution is spearheading the initiative, is partnering with a not-for-profit agency to assist in the implementation of the program, and the program has political backing from local officials, community leaders and economic development agencies. The occupation location quotient and STEM jobs analyses

indicate that the volume of businesses and the chaotic business climate is driving the EG program. The IBGN is focused on assisting second stage companies primed for growth, and the initiative is focused, at least in the pilot-stage of the initiative, on the areas with the highest number of business establishments and in the areas with the highest amount of business activity.

5.13 Lancaster County, Pennsylvania – Lancaster MarketEdge

Influenced by the Littleton Economic Gardening initiative, the Library System of Lancaster County created their own EG program, in May of 2001. The program was originally referred to as "BIG," which stood for Biz Info to Grow (Hauer, 2007), and reinvented itself recently with the new name of "Lancaster MarketEdge," but its strategy is the same. A Lancaster delegation visited Littleton in 1999, and returned convinced that an EG program would work in Lancaster. Lancaster is home to a large number of small businesses, and the delegation tapped the county library system to lead the endeavor by locating information centers within each of the five county libraries (Hauer, 2007).

In 2005, the total estimated cost of services rendered totaled $1.2 million (services are free, this was an estimate), which was more than twelve times the county investment of $105,405 (Hauer, 2007). Based on requests to have a centralized headquarter location and funded by a Library Services and Technology Act (LSTA) grant and a High Foundation grant, the Lancaster Library System created the Duke Street Business Center at the Lancaster Public Library. The upgraded facility features new computers and access to more digital research resources. In the first four months of operation, the center received 365 new business requests (Hauer, 2007).

Lancaster MarketEdge experienced low interest initially and interest among business leaders has grown through word-of-mouth. Businesses do not naturally seek the help of a

public library to for assistance and growth strategies, but the momentum built by the initiative became hard to ignore. As a result of the initiative, Lancaster MarketEdge gained the attention of the local chamber of commerce and the economic development agency and have subsequently forged an effective partnership along with various other economic development and business oriented agencies in the local area.

Lancaster MarketEdge is focused on empowering local companies with information, namely "competitive intelligence" which can become a "decision support system" (Lancaster MarketEdge, 2011). The initiative drives companies with competitive intelligence by conducting training seminars on how to use the tools the libraries have to offer. They have essentially transformed a library card into a more immediate business asset. The training seminars focus on the power of competive intelligence, company and industry analysis using Standard Industrial Classification (SIC) and the North American Industry Classification System (NAICS) codes, financial and international research, trade and regional resources, and government tools.

According to figure 5.13.1, The areas with the highest concentrations of business activity are the Southeast and Southwest corners. Lancaster County is situated just west of the Philadelphia-Camden-Wilmington MSA, and maintains a high level of business activity on its own. Lancaster County is not home to the most chaotic business environments in Pennsylvania, as the Philadelphia and Pittsburgh MSAs have that honor, however there is at least a moderate amount of business turnover in Lancaster County, as displayed in figure 5.13.2 on the following page.

Figure 5.13.1: Pennsylvania County Establishments 2007

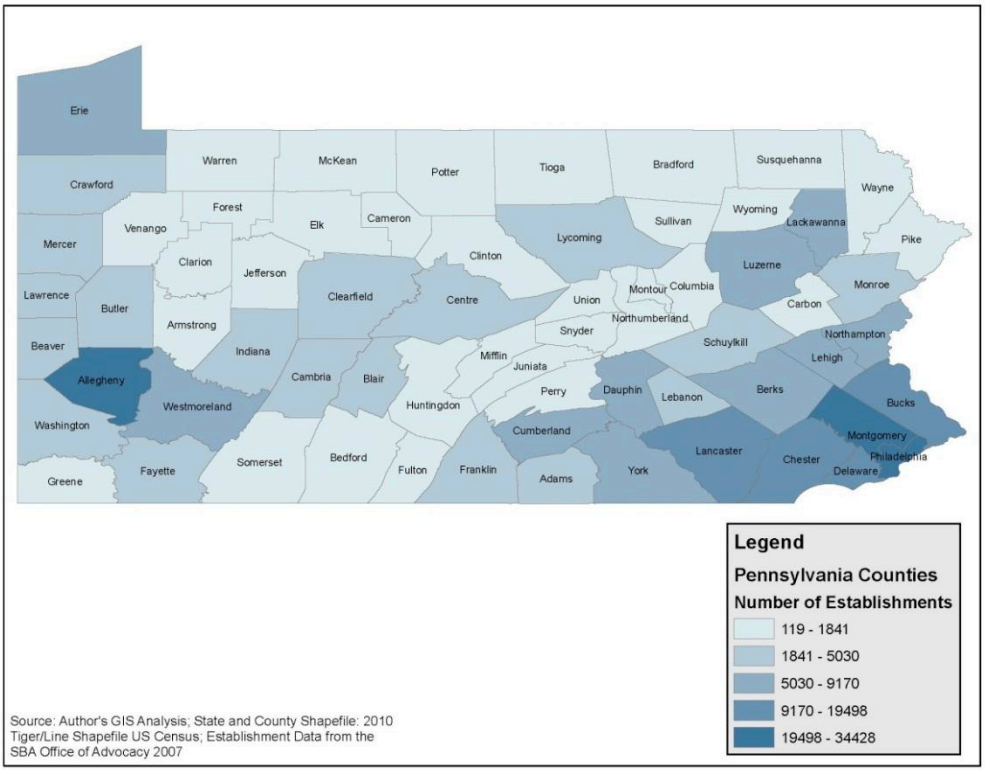
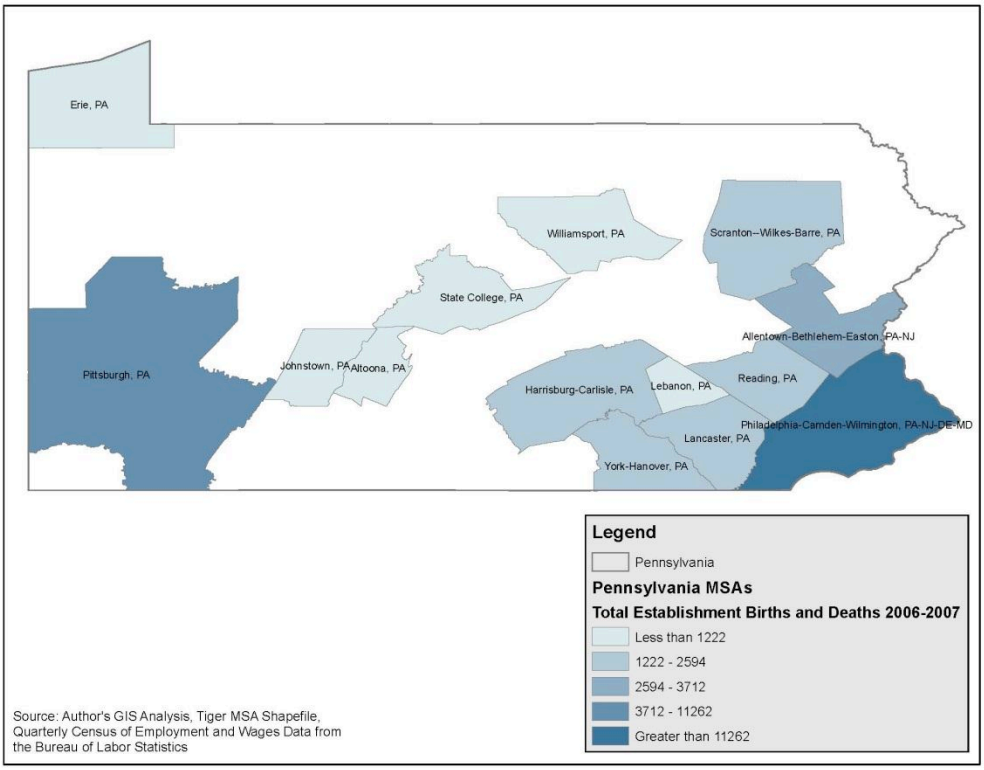


Figure 5.13.2: Pennsylvania MSA Establishment Total Births and Deaths 2006-2007



5.14 Location Quotient Analysis

The Harrisburg-Carlisle and the Philadelphia Metropolitan Statistical Areas indicate occupation strengths in Computer and Mathematical and Business and Financial Operations areas, while the Philadelphia MSA shows a specialization in Life, Physical, and Social Science occupations as well as Community and Social Service occupations. Lancaster shows a specialization in Construction, Production and Transportation occupation areas.

Figure 5.14.1: Pennsylvania MSA OES Location Quotients

OCC_Title	OCC_Code	Allentown-Bethlehem-Easton, PA-NJ	Harrisburg-Carlisle, PA	Lancaster, PA	Philadelphia, PA Metropolitan Division	Reading, PA	York-Hanover, PA
Management Occupations	11-0000	0.827	0.821	0.702	0.901	0.709	0.675
Business and Financial Operations Occupations	13-0000	0.799	1.353	0.627	1.223	0.687	0.694
Computer and Mathematical Occupations	15-0000	0.666	1.402	0.395	1.191	0.452	0.410
Architecture and Engineering Occupations	17-0000	0.872	0.912	0.569	0.931	0.930	1.024
Life, Physical, and Social Science Occupations	19-0000	0.713	0.793	0.615	1.383	0.571	0.489
Community and Social Service Occupations	21-0000	1.126	1.110	1.059	1.507	1.137	0.943
Legal Occupations	23-0000	0.543	1.303	0.424	1.277	0.574	0.383
Education, Training, and Library Occupations	25-0000	1.044	0.828	0.822	0.966	1.111	0.895
Arts, Design, Entertainment, Sports, and Media Occupations	27-0000	0.805	0.800	0.830	0.962	0.629	0.730
Healthcare Practitioners and Technical Occupations	29-0000	1.175	1.014	0.929	1.116	1.023	0.949
Healthcare Support Occupations	31-0000	1.177	0.978	1.097	1.210	1.185	1.014
Protective Service Occupations	33-0000	0.685	0.912	0.470	1.043	0.697	0.556
Food Preparation and Serving Related Occupations	35-0000	0.942	0.945	0.993	0.884	0.945	0.996
Building and Grounds Cleaning and Maintenance Occupations	37-0000	1.023	0.835	0.941	1.038	0.905	0.820
Personal Care and Service Occupations	39-0000	1.085	1.002	0.839	1.072	0.951	0.933
Sales and Related Occupations	41-0000	1.001	0.897	1.112	0.994	1.004	1.040
Office and Administrative Support Occupations	43-0000	1.096	1.140	0.998	1.081	0.949	0.900
Farming, Fishing, and Forestry Occupations	45-0000	0.226	0.449	1.081	0.275	0.431	0.336
Construction and Extraction Occupations	47-0000	0.784	0.768	1.251	0.756	0.875	1.100
Installation, Maintenance, and Repair Occupations	49-0000	1.118	1.002	1.130	0.887	1.193	1.153
Production Occupations	51-0000	1.146	0.771	1.676	0.785	1.757	1.960
Transportation and Material Moving Occupations	53-0000	1.113	1.296	1.405	0.849	1.219	1.444

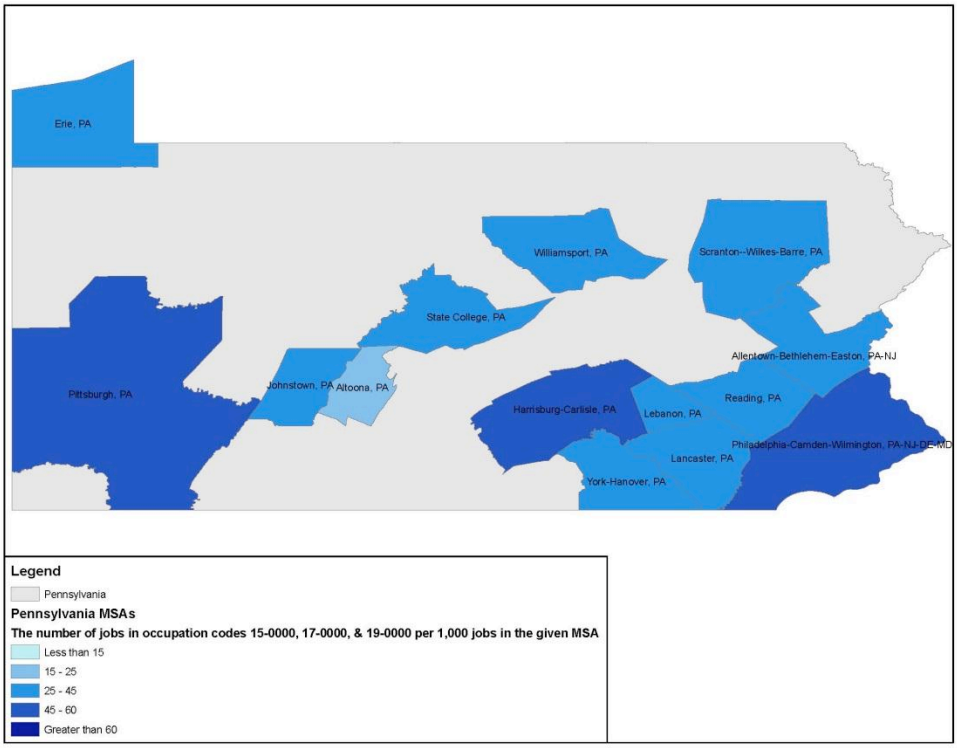
Source: Author's Analysis, BLS OES 2010

5.15 STEM Jobs Per 1000 Analysis

The Science, Technology, Engineering, and Mathematics jobs per one thousand total jobs in the given MSA shows strengths in an educated workforce for the larger Metropolitan

Statistical Areas of Philadelphia and Pittsburgh while the majority of the remaining MSAs show strength compared to the other case study areas. The Lancaster MSA registers at between twenty-five and forty-five STEM jobs per one thousand total jobs.

Figure 5.15.1: Pennsylvania MSAs I Number of Jobs in Occupation Codes 15-0000, 17-0000, & 19-0000 per 1000 Jobs



5.16 Lessons Learned – Lancaster MarketEdge

The use of the public library system proved an effective framework for an Economic Gardening Initiative; after a few years of operating in a decentralized network of support centers the initiative reorganized to a centralized framework with a single headquarters site with a trained "business librarian" available to work directly with the public, which experienced an increase in interest and work requests (Hauer, 2007). The Lancaster Economic Gardening initiative capitalized on one of its strengths, a strong public library system, to support the large number of small businesses present in the county. Given the framework of educating business

professionals to use the tools available themselves, the identification of a head librarian or "business librarian" at a centralized location had a great impact in the relevance of the initiative. The libraries were able to access federal funding that would have been unavailable to any other entity in the County, opening up the idea of funding opportunities of county entities that already exist. The Lancaster County EG program capitalizes on the high volume of businesses and the highly educated workforce to drive its initiative.

5.17 Case Study – Lessons Learned

Most of the Economic Gardening programs studied are located in major metropolitan areas with a high volume of existing businesses and a high amount of business turnover, i.e. new company startups and business failures. EG programs with a consolidated command entity are more stable, and in the case of the GrowFL initiative, the location of the headquarters seems to have an effect on local businesses. The knowledge-intensity of an area seems to play a minor if not irrelevant role for Economic Gardening programs; while all of the case study areas demonstrated at least a competitive profile for STEM occupations, the only area with an overwhelming strength was the Denver-Aurora Colorado MSA. That strength played a role in the success of the pilot program for the concept, but it seems that the knowledge-intensity of a given area does not determine the success or failure of an EG initiative. Areas with a high amount of business activity, both in sheer volume and business turnover, seem to have the most success in Economic Gardening endeavors.

Effective partnerships among governing entities and economic development agencies contribute to the success and legitimacy of an EG initiative. Although the immediate areas around a headquarter location is affected the most by an initiative, technology has enabled EG programs to span entire states effectively.

In order for an EG program to succeed, it must have public support and be politically feasible, and there must be preexisting infrastructure for such a plan, i.e. strong economic development agencies located throughout the desired coverage area, effective practitioners of information databases, marketing, Geographic Information Systems, and small business educators and developers. Economic Gardening programs have the power to pay back initial investment twelve times over, but the infrastructure and business environments must be in place to be effective.

6. Implications for the State of Georgia

As indicated in Figure 6.1.1, Georgia has a high volume of businesses, with the activity concentrated in the Metro Atlanta Area, North Georgia and the Coastal region around Savannah. The areas with the highest amount of business turnover are located in and around the Atlanta Metropolitan Statistical Area and the Coastal Region, as displayed in figure 6.1.2. The areas with location quotient specializations in the Science, Technology, Engineering, and Mathematics occupations are the Atlanta, Athens-Clarke County, Augusta-Richmond County GA-SC, Hinesville-Fort Stewart, and Warner Robbins MSAs, as shown in figure 6.1.3. The number of STEM jobs per one thousand total jobs logically follow the same pattern of MSAs with location quotients in STEM occupations greater than 1.15, as indicated in figure 6.1.4.

Figure 6.1.1: Georgia County Establishments 2007

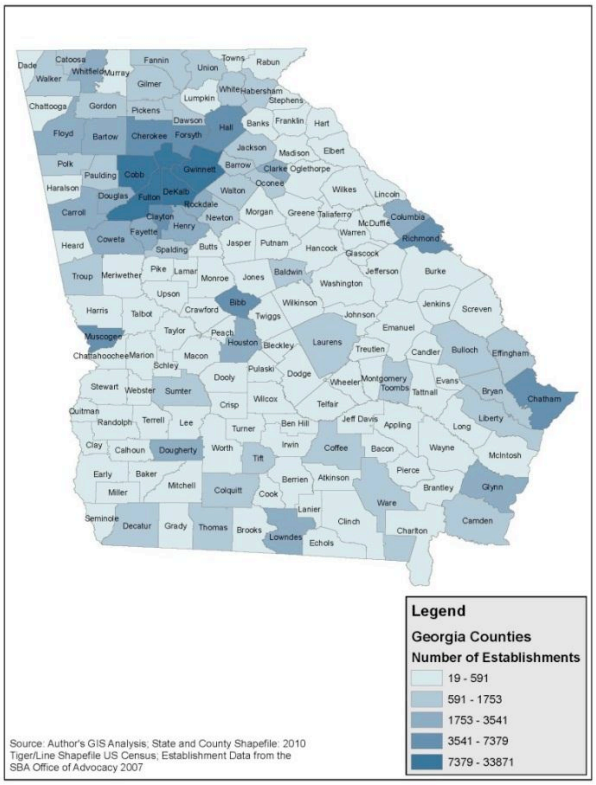


Figure 6.1.2: Georgia MSA Establishment Total Births and Deaths 2006-2007

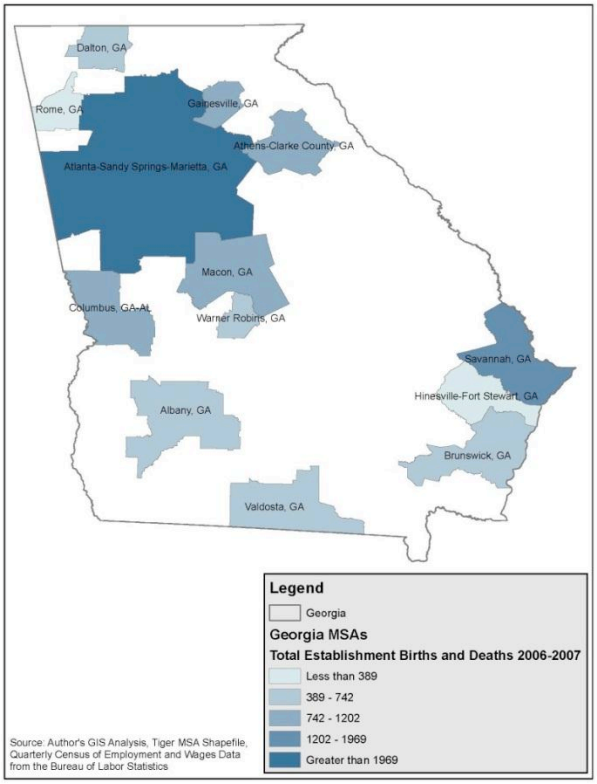
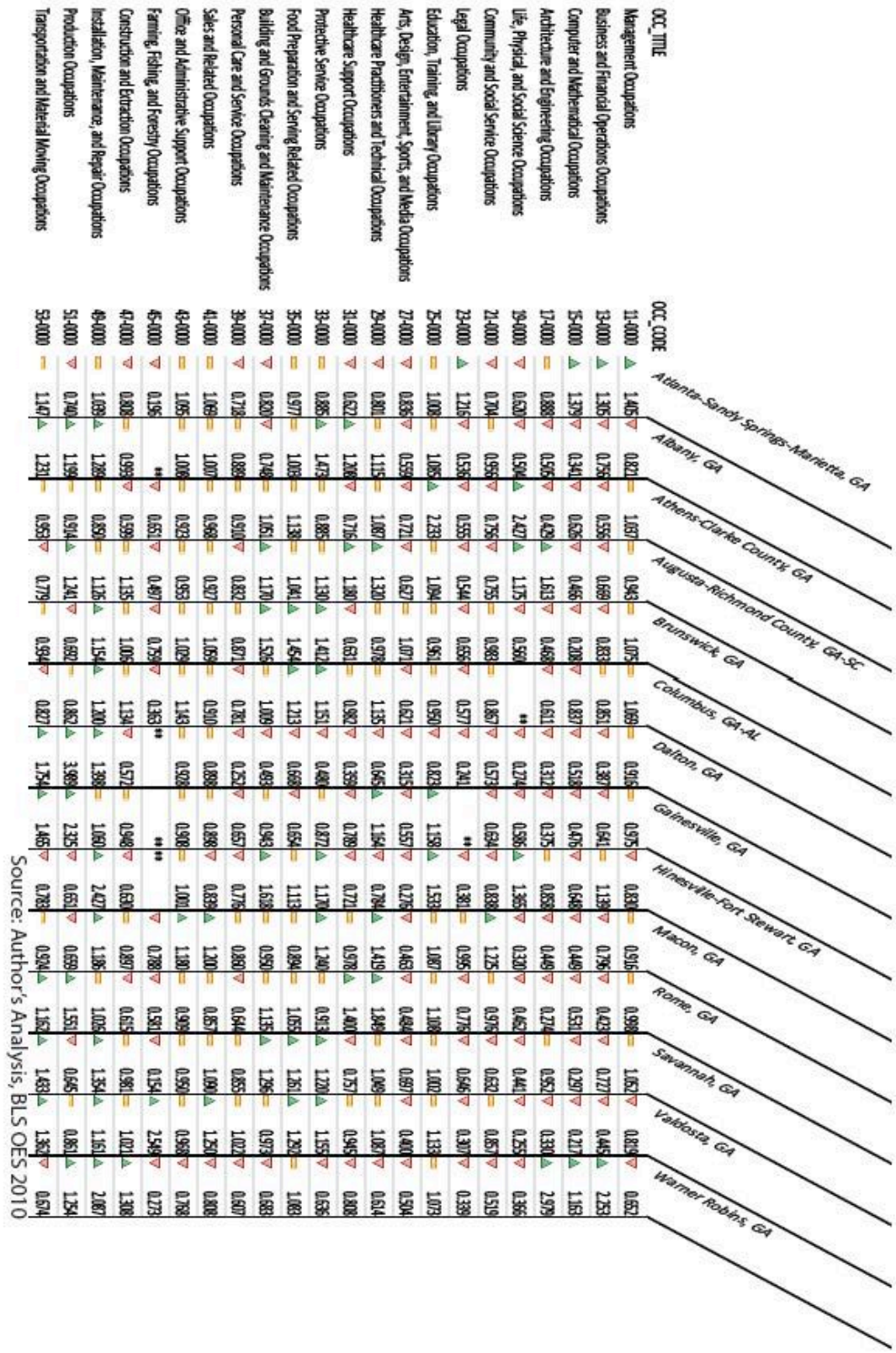


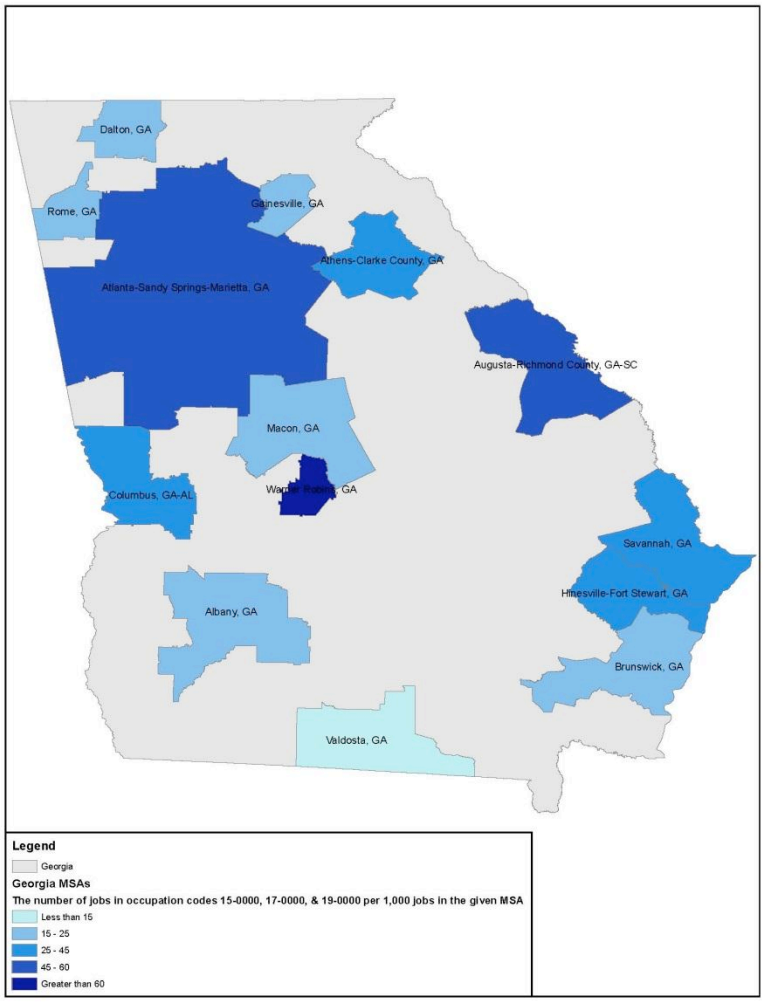
Figure 6.1.3: Georgia MSA OES Location Quotients



OCC_CODE	OCC_TITLE	Atlanta-Sandy Springs-Marietta, GA	Albany, GA	Athens-Clarke County, GA	Augusta-Richmond County, GA-SC	Brunswick, GA	Columbus, GA-AL	Dalton, GA	Gainesville, GA	Hinesville-Fort Stewart, GA	Macon, GA	Rome, GA	Savannah, GA	Valdosta, GA	Warner Robins, GA
11-0000	Management Occupations	1.405 ▽	0.821 =	1.037 =	0.943 =	1.075 =	1.069 =	0.916 =	0.975 ▽	0.830 =	0.916 =	0.998 =	1.062 ▽	0.839 ▽	0.652
13-0000	Business and Financial Operations Occupations	1.305 ▽	0.756 ▽	0.556 ▽	0.689 ▽	0.833 =	0.851 ▽	0.387 ▽	0.541 =	1.139 ▽	0.796 ▽	0.423 ▽	0.727 ▽	0.445 ▲	2.253
15-0000	Computer and Mathematical Occupations	1.379 ▽	0.341 ▽	0.626 ▽	0.466 ▽	0.208 ▽	0.837 ▽	0.518 ▽	0.476 ▽	0.648 ▽	0.449 ▽	0.531 ▽	0.297 ▽	0.217 ▲	1.163
17-0000	Architecture and Engineering Occupations	0.888 ▽	0.505 ▽	0.429 ▲	1.613 ▽	0.468 ▽	0.611 ▽	0.312 ▽	0.375 =	0.858 ▽	0.449 ▽	0.274 =	0.952 ▽	0.330 ▲	2.979
19-0000	Life, Physical, and Social Science Occupations	0.620 ▽	0.594 ▲	2.427 ▲	1.175 ▽	0.569 ▽	** ▽	0.274 ▽	0.306 ▲	1.365 ▽	0.320 ▽	0.462 ▽	0.441 ▽	0.259 ▽	0.366
21-0000	Community and Social Service Occupations	0.704 =	0.956 ▽	0.756 ▽	0.755 =	0.983 =	0.867 ▽	0.573 ▽	0.634 ▽	0.838 ▲	1.225 =	0.976 ▽	0.632 =	0.857 ▽	0.519
23-0000	Legal Occupations	1.216 ▽	0.536 ▽	0.555 ▽	0.544 ▽	0.656 ▽	0.577 ▽	0.241 ▽	** ▽	0.301 =	0.995 ▽	0.776 ▽	0.646 ▽	0.307 ▽	0.339
25-0000	Education, Training, and Library Occupations	1.008 =	1.085 ▲	2.233 =	1.094 =	0.961 =	0.950 ▽	0.823 ▲	1.158 ▲	1.533 =	1.087 =	1.108 =	1.002 =	1.133 =	1.073
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	0.836 ▽	0.559 ▽	0.721 ▽	0.627 =	1.071 ▽	0.621 ▽	0.315 ▽	0.557 ▽	0.276 ▽	0.463 ▽	0.484 ▽	0.697 ▽	0.407 ▽	0.504
29-0000	Healthcare Practitioners and Technical Occupations	0.801 ▽	1.115 =	1.087 ▲	1.320 =	0.978 =	1.135 ▽	0.645 ▲	1.154 ▽	0.784 ▲	1.419 ▲	1.849 =	1.049 =	1.087 ▽	0.614
31-0000	Healthcare Support Occupations	0.622 ▲	1.268 ▽	0.716 ▲	1.380 ▽	0.631 =	0.982 ▽	0.359 ▽	0.789 ▽	0.721 =	0.978 ▲	1.400 ▽	0.757 =	0.945 ▽	0.808
33-0000	Protective Service Occupations	0.885 ▲	1.473 =	0.886 =	1.130 ▲	1.412 ▲	1.151 ▽	0.488 =	0.972 ▲	1.170 ▲	1.240 =	0.913 ▲	1.220 ▲	1.155 ▽	0.636
35-0000	Food Preparation and Serving Related Occupations	0.977 =	1.008 =	1.138 =	1.041 ▲	1.454 ▲	1.213 ▽	0.668 ▽	0.654 =	1.113 =	0.894 =	1.055 ▲	1.261 ▲	1.259 =	1.083
37-0000	Building and Grounds Cleaning and Maintenance Occupations	0.820 ▽	0.748 =	1.061 ▲	1.170 ▲	1.326 =	1.009 ▽	0.493 =	0.943 ▲	1.618 =	0.950 =	1.135 ▲	1.296 =	0.979 ▽	0.883
39-0000	Personal Care and Service Occupations	0.732 =	0.888 =	0.910 ▽	0.820 =	0.871 ▽	0.781 ▽	0.324 ▽	0.657 ▽	0.776 =	0.860 ▽	0.644 =	0.855 =	1.020 ▽	0.607
41-0000	Sales and Related Occupations	1.069 =	1.007 =	0.968 =	0.927 =	1.059 =	0.910 =	0.808 =	0.869 ▽	0.838 ▲	1.200 =	0.857 =	1.090 ▲	1.250 ▽	0.808
43-0000	Office and Administrative Support Occupations	1.095 =	1.006 =	0.923 =	0.953 =	1.029 =	1.143 =	0.928 =	0.908 =	1.001 ▲	1.180 =	0.909 =	0.950 =	0.968 ▽	0.768
45-0000	Farming, Fishing, and Forestry Occupations	0.196 ▽	** ▽	0.651 ▽	0.497 ▽	0.759 ▽	0.363 **	**	** **	▽	0.788 ▽	0.501 ▽	0.154 ▽	2.549 ▽	0.273
47-0000	Construction and Extraction Occupations	0.808 ▽	0.993 ▽	0.599 =	1.135 =	1.006 =	1.134 ▽	0.572 =	0.948 ▽	0.630 =	0.897 ▽	0.615 =	0.981 =	1.021 ▲	1.308
49-0000	Installation, Maintenance, and Repair Occupations	1.039 ▲	1.269 =	0.859 =	1.126 ▲	1.154 ▲	1.200 ▲	1.388 =	1.060 ▲	2.407 ▲	1.186 =	1.026 ▲	1.354 ▲	1.161 ▲	2.087
51-0000	Production Occupations	0.740 ▲	1.199 =	0.914 ▲	1.241 ▽	0.692 =	0.862 ▲	3.989 ▲	2.325 ▽	0.651 ▽	0.659 ▲	1.551 ▽	0.845 =	0.861 ▲	1.254
53-0000	Transportation and Material Moving Occupations	1.147 ▲	1.231 =	0.951 ▽	0.779 ▽	0.944 ▽	0.827 ▲	1.754 ▲	1.465 ▽	0.783 =	0.924 ▲	1.162 ▲	1.433 ▲	1.364 ▽	0.574

Source: Author's Analysis, BLS OES 2010

Figure 6.1.4: Georgia MSAs | Number of Jobs in Occupation Codes 15-0000, 17-0000, & 19-0000 per 1000 Jobs



The high volume of business activity state-wide, along with the high amount of business turnover indicates that a statewide Economic Gardening initiative is feasible for Georgia. Statewide Economic Gardening initiatives should look to the Atlanta and Coastal areas for a pilot-stage initiation before tackling the more sparsely populated areas of the South and Southwest regions of Georgia. Georgia maintains the second highest number of counties for any single state, any statewide initiative would benefit from dividing the state into regions to effectively manage different local governing entities. Much like the twelve regional planning authorities are assigned sections of the State to manage, a Georgia EG initiative would benefit

from such a regional assignment. Georgia has a solid framework of economic development agencies, small businesses, and planning agencies that span the state and could support a statewide EG initiative. Although not officially recognized as Economic Gardening in name many economic development agencies across the state perform EG functions as a part of their normal routine. For instance, the Georgia Centers for Innovation, a program operated by the Georgia Department of Economic Development, provides business expertise, research, and networking oportunities to Georgia businesses in strategic industries (GDEcD). Agencies are dispersed across the state and a coordinated EG effort would flow seamlessly using currently allocated resources. Just as the five public libraries in Lancaster County allowed for the entire county to be served effectively, and the regional partnerships enabled GrowFL to implement a statewide EG strategy, regional authorities could effectively implement an EG strategy for Georgia.

7. Recommendations

The State of Michigan, under the leadership of Governor Rick Snyder, is shifting its economic development focus for the state from one of "economic hunting," to a strategy of Economic Gardening (Public Policy Associates, 2012). Snyder, a former venture capitalist and business executive, envisions a statewide network of coordinators to execute a program focused on existing Michigan businesses and new area startups. Snyder's plan for Michigan is no stranger to controversy and similar initatives have come under fire, such as a statewide Economic Gardening initiative bill that failed to pass the Colorado State House of Representatives in February of 2011 (Sealover, 2011). As a part of the Colorado EG bill, certain business attraction related tax credits would be reduced to fund a statewide EG initiative; opponents of the bill cited the a reduction in the credits would make Colorado less competitive in the business-attraction game. The short-term benefits of company relocations continue to

outweigh the long-term successes of growing jobs from within, even in a state with the most successful Economic Gardening initiative to date.

Economic Gardening is an innovative approach to local economic development with tremendous implications for small businesses local economies alike. The Littleton Initiative has demonstrated the potential for EG programs to create more resilient and sustainable economies, and how a dedication to small businesses can drive local economies. Economic Gardening programs seem to thrive in areas with a high volume of businesses, a high amount of turnover (business births and deaths) drives adaptation and innovation among companies, local and/or state government long-term support of EG programs are crucial to the establishment and success of EG initiatives, and a well-connected network of EG centers allows initiatives to span great areas for business support. The pressence of a well-educated workforce and specializations in STEM occupations contribute to fertile areas for Economic Gardening initiatives, as shown by the Littleton case study, but are not essential, as indicated by the Indiana and Pennsylvania examples. Efficient allocation of scarce public resources for Economic Gardening initiatives should focus on regions exhibiting the above listed characteristics prior to state-wide or country-wide programs.

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